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CONTENTS

	PAGE
Editorial Notes	325
Record Railway Earnings	327
"Select Committee" Report on Rail and Road Transport	327
Air and the Ministry of Transport	329
Letters to the Editor	330
The Scrap Heap	332
Overseas Railway Affairs	333
The Maintenance of Diesel-Electric Shunting Locomotives on the L.M.S.R.	334
Plastics in Railway Engineering	337
Electric Traction Section	340
Improved Loudspeaker Installation at Liverpool Street Station	342
Personal	343
Transport Services and the War	345

DIESEL RAILWAY TRACTION SUPPLEMENT

The April issue of THE RAILWAY GAZETTE *Supplement, illustrating and describing developments in Diesel Railway Traction, will be ready on April 1, price 1s.*

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

NOTICE TO SUBSCRIBERS

Consequent on the paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list and will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

As from Monday next and until further notice our office hours are :

Mondays to Fridays 9.30 *a.m. till* 5.30 *p.m.*

The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Post-War Industry

SO far as is possible without detriment to the war effort it is desirable that the post-war situation of industry should be in the minds of our leading industrialists. Lord McGowan, in a recent speech at Cardiff, showed that Imperial Chemical Industries is fully aware of that need, and he had much to say that is of value in a consideration of immediate post-war problems. Among the points he made was one which is of particular value coming from one so closely associated with so large an industrial undertaking as Imperial Chemical Industries. This was that experience had shown that a factory could be too large; there was a point beyond which the advantages of a spread of overheads was lost. Many industrial leaders are already considering the post-war location of new factories. Important factors are the availability of raw materials, port or railway facilities, and the advantages of existing services, such as drainage. He made it clear that the extent to which post-war schemes are developed must depend on wise Government action in many fields, particularly those concerned with full employment at home and international co-operation in finance and commerce overseas. To prevent a recurrence of wide fluctuations in employment after the war, it may be necessary to encourage consumption, or to increase capital expenditure at home or abroad.

Assistance by the State

In rendering assistance to steady industrial conditions the State has at hand the means to this end. It can influence the whole structure of industrial costs and prices by its monetary and budget policy; through its control of the monetary system it can effect the rate of interest and the volume and disposition of credit, and it can vary the incidence and rate of taxation. Lord McGowan is convinced that the trade prospects of this country for some years after the war are excellent, but he warned against the dangers of an insensate boom with its inevitable corollary of a slump. He did not favour Government controls longer than absolutely necessary. Unless they were abolished, he pointed out, they will constitute the thin end of the wedge for State control, which could lead eventually only to a regimentation of life intolerable in this country. Both Germany and Japan, unless subject to control, are likely to be considerable competitors for world trade, and, on the need to increase British exports to make good the deficit arising from the loss of overseas investments, he urged the highest possible efficiency in methods and machinery. This efficiency will have to be achieved, notwithstanding cost factors arising out of new policies, such as social security, extended education and health service; although these in the long run will be of great value in the industry, their immediate effect will be to increase costs. A more comprehensive and flexible scheme for export credits would greatly enhance the chances of success of our post-war export industries.

British Railway Investments in Venezuela

Venezuela enjoys the distinction of being among the best of the nations in Latin America, so far as high average yield on British capital invested there is concerned. The total of British capital associated with Venezuela, and quoted in the London Stock Exchange Lists at the end of last year, was **£14,708,287**, on which interest of **£1,248,251**, or **8·1** per cent., was received. There is comparatively little British money invested in the railways of Venezuela, and the statistics compiled by *The South American Journal* show only **£610,200** as the amount of capital. On that sum interest of **£33,695**, or **5·5** per cent., was paid last year, and **£273,241** received no interest. Those figures are approximately the same as for **1942**, but in **1940** the amount quoted was **£2,527,626**, on which only **£21,900**, or **0·8** per cent., was received in interest. The increase since then has been due to the payment of debenture arrears by La Guaira & Caracas Railway, and the drop in the amount of capital has been caused by the removal from the Stock Exchange lists of issues in which little dealing has taken place.

Ticket-Issuing Machines in London

A census of tickets issued on London Transport railways reveals that there has been a marked increase in the use of ticket-issuing machines at Central Area stations, and those serving main-line stations. For example, **34** ticket machines now installed at Piccadilly Circus station supply **70** per cent. of the total tickets issued, and on one day recently the figure rose as high as **75** per cent. At Oxford Circus, Waterloo, Tottenham Court Road, Holborn, and other busy stations, such machines supply over **50** per cent. of the tickets issued. Another interesting figure which the census has brought to light is that **87** per cent.

of the total tickets issued at stations today are supplied through machines of various kinds, including those in the booking offices. This is an increase of 8 per cent. over the 1938 figure, and the speedier issue of machine tickets has enabled the increasing traffic to be dealt with expeditiously by a war-depleted staff. At present there are 900 automatic ticket-issuing machines in use on the Underground system. Half of these issue tickets, value 1½d. to 6d., but give no change; the remainder issue tickets, value 1½d. to 11d. and also give change. Some of the machines are of considerable ingenuity and are capable of printing tickets and supplying change at the rate of 20 a minute. Although the war has interrupted the progress of ticket machine design, development has not been at a complete standstill. Two experimental machines, embodying among other new features more varied coin reception and change-giving, including the new 3d. piece, have been on trial at Piccadilly Circus Station for some months.

Overseas Railway Traffics

A distinct improvement showed itself recently in the prices of the securities of British-owned railways in Argentina, with advances in ordinary and preference stocks as well as the more marked appreciation of debentures. There has, however, been some reaction, only partly due to profit-taking. Traffics in the 37th and 38th weeks of the financial year continued to be satisfactory. The increases in the two weeks were:—Buenos Ayres Great Southern £73,260, Central Argentine £71,449, Buenos Ayres & Pacific £17,580, Buenos Ayres Western £17,220, Argentine North Eastern £7,428, and Entre Rios £3,300. On the Central Uruguay decreases in receipts continue to be recorded, but at the end of the 38th week the aggregate traffic of £1,259,498 was still £218,528 on the right side. Brazilian railway traffics are still mounting with the aid of tariff increases but rising costs must always be borne in mind. Up to March 18 of this year the receipts of the Great Western showed an advance of £70,800, and those of the Leopoldina an advance of £130,279.

	No. of week	Weekly traffics £	Inc. or dec. £	Aggregate traffic £	Inc. or dec. £
Buenos Ayres & Pacific*	38th	129,300	+9,000	3,897,720	+187,980
Buenos Ayres Great Southern* ...	38th	209,400	+28,500	6,764,820	+660,960
Buenos Ayres Western*	38th	63,600	+8,580	2,091,780	+49,740
Central Argentine*	38th	171,750	+34,350	5,610,042	+584,637
Canadian Pacific	11th	1,168,800	+165,200	11,859,200	+1,918,600

* Pesos converted at 16⅔ to £

For the past four weeks the traffics of the United Railways of the Havana have improved to the extent of £48,698, and the aggregate advance to date is £147,546.

Death of Wick & Lybster Light Railway

The intimation of the L.M.S.R. that the Wick & Lybster Railway is to be closed for the conveyance of all rail traffic after the finish of work on April 1, which we recorded briefly last week, brings to an end the career of a line which has the distinction of being the most northerly light railway in the British Isles. It was authorised under an Order dated November 27, 1899, and extended for 13½ miles from the Highland Railway terminus at Wick to the fishing village of Lybster. Construction was effected with the aid of a substantial Government grant, and traffic began on July 1, 1903, worked by the Highland Railway under a series of agreements. Construction cost was kept to a minimum by laying the track mainly on the surface, with few earthworks, and this single line has frequent stretches as steep as 1 in 50. Most of the rails are flat-bottom, spiked direct to the sleepers. The intermediate stations and halts bear the quaint names of Thrumster, Welsh's Crossing, Ulbster, Mid Clyth, Roster Road, Occumster, and Parkside, some of which are obvious evidence of the Norse influence in this part of the world. Fish traffic has been the main feature of the line, and the branch has made no small contribution to the frequent express fish trains leaving Wick for the South. There is an excellent bus service provided by the Highland Transport Co. Ltd., an associate of the L.M.S.R., which extends from Wick to Helmsdale, *via* Lybster. Passenger train parcels, newspapers, and perishable passenger train traffic, such as fish, etc., will be conveyed between Wick and the stations on the branch by road motor vehicle working from and to Wick Station.

Chilean Railways and Air Lines

The long narrow shape of Chile, covering the Pacific strip between the Andes and the ocean, makes the Chilean railway system peculiarly susceptible to competition from air lines. Possibly because many of the railways are owned by the Chilean State, this was realised in early days by the Chilean Government, and steps were taken to limit competition from foreign air transport undertakings. Civil aviation in Chile is the responsibility of the Dirección de Aeronáutica, which is under the immediate control of the Ministry of the Interior. Chilean law permits only its national air line to carry traffic originating at one point in Chile and destined for another point in the country; its domestic service is provided by the Linea Aerea Nacional, known as the L.A.N., which began operations in 1930 along the coast line from Santiago northward, and later extended southward to Concepción. The northern route, which is 1,075 miles in length from Santiago to Arica, provides both local and express services, and touches the intermediate towns of Ovalle, La Serena, Vallenar, Copiapo, Taltal, Antofagasta, Tocopilla, and Iquique. The southern route extends from Santiago to Concepción, *via* Couquenes, but is intended to be extended to Puerto Montt, Castro (Island of Chiloe), and points further south. It will then parallel the whole of the north-south railway system. International and transcontinental air lines are provided by Panagra (Pan-American-Grace Airways, Inc.), which touches Arica, Antofagasta, and Santiago. On September 6, 1942, a new route was established between Antofagasta and Salta (2 hr. 20 min.) paralleling the yet uncompleted railway across the Andes through the Socompa Pass.

Plastics for Railway Work

Elsewhere in this issue an article deals with plastics as applied to railway uses. One of the joint authors is well known in railway circles, and the other is the writer of a text-book on the same subject. It has been pointed out recently that we may be living on the verge of a new era—a "plastic" age, and certainly the technique and applications are widening at a striking rate of progress. Yet the plastic experts are constantly warning the public not to be carried away by their zeal for these new materials or to ascribe possibilities to them which they cannot fulfil. However, there is no doubt that very great fields of enterprise lie open and railway service is but one of them. In such items as interior decoration of coaches, station premises and hotels there are prospects of colourful hygienic materials which will be welcome after the drabness of the past. All the art of the railway companies must be pressed into attracting customers, and one of the simplest ways, but of great psychological import, is by cleanliness, cheerful colours, and modernity. Plastic materials will be useful servants in attaining the results. The companies have already given proof of the standard that can be attained and anyone who saw the Coronation Scot sent to America before the war must have realised that, given proper encouragement, our designers can discard the old and put on the new. It is, however, not the occasional inspiration which is required, but a generally higher standard all round.

American Wartime Freight Rates

On April 6, 1943, the United States Interstate Commerce Commission authorised an increase in freight rates on U.S.A. railways to meet the considerably increased wage bill and cost of materials and equipment, operative to begin with from May 15, 1943, to January 1, 1944. As a result of the expansion of railway earnings, however, the increase was suspended, and after a meeting on October 29 of the board of the Association of American Railroads, the railways intimated to the I.C.C. that they would not oppose the extension of this suspension for a further six months. Opinion on the matter is sharply divided. Various outside bodies, with interests in railway freight transport, such as the New Orleans Public Belt, desire the increase restored, as do also the American Trucking Associations in respect of less-than-carload freight. The original decision of the I.C.C. to suspend the increase was also a majority decision by as narrow a margin as six to five, after representations by the Federal Price Administrator, War Food Administrator, and Director of Economic Stabilisation that suspension would assist the Government's efforts to stabilise prices. The same Government agencies now contend that the financial position of the railways is so sound that short-term suspensions are no longer justified, and that the previous position should be restored; but the railways, in view of the uncertainty of the present situation, reserve the right to petition for a restoration of the increases should there be any radical change in the wage or tax situation to their detriment.

Utilising Low-Grade Fuel

Although fuel utilisation is almost complete in locomotives of modern design there remains an unburnt residue which is unsuitable for feeding into the firebox a second time; this is the char taken from the smokebox at the end of a day's work. On account of its small size and its liability to produce clinker it needs to be burned on a special grate; for this reason it may be relegated to stationary boilers which, though of locomotive type, can be provided with grates on which it will burn satis-

factorily. The L.M.S.R. has adapted a number of such boilers to consume smokebox char mixed with only a very small proportion of good-quality coal; on page 335 of this issue will be found a description of the method employed together with an account of the results obtained. Up till recently the general practice has been to send smokebox char to the company's electricity generating stations but this involves transport which the new development should be able to eliminate. An incidental advantage of the special grate is that it will burn coal slack as readily as smokebox char, thus making the requirement for high-grade fuel very low even in those localities where no char is available.

Maintenance of Diesel-Electric Shunting Engines

In the light of ten years' experience in the operation and maintenance of diesel locomotives for shunting duties, the L.M.S.R. has been able largely to systematise the overhaul and maintenance routine, which in earlier days was, of necessity, largely empirical. Mr. C. E. Fairburn gave some valuable observations on the subject in his paper to the Institution of Locomotive Engineers, which we reproduce in abstract on p. 334. It is interesting to compare this paper with one given by the same author in 1941 and to note the steady progress which has been made in the mileage attained between overhauls and in the intervals between routine examinations of various items. Certain modifications in design and equipment are to be incorporated in future types; motor suspension, control gear, and lubricating arrangements form the principal items for which improvements have appeared to be desirable. An efficient technique has been developed for the testing of lubricating oil, and the results gained with magnetic filters are especially interesting. In general, the electrical equipment has proved to be robust and likely to outlast the rest of the engine; on the mechanical side, the rates of wear of the engine parts are commendably low. The author shows the high degree of availability of these engines—98 per cent. theoretical and 75-85 per cent. actual—whilst working three shifts a day, and six or seven days a week, despite which he expects an economic life of at least 30 years, basing his estimate on present rates of wear.

Record Railway Earnings

SUCH was the heading of an editorial in our April 9, 1943, issue when we recorded that the estimated net revenue of the railway pool for the year 1942 reached the record figure of £89,126,000, as compared with £65,125,000 in 1941. These figures are far surpassed by the estimated net revenue of the pool for 1943 which, as will be seen from the Government White Paper* reproduced on page 347, established a new record figure of £105,568,000. Thus, after allowing for the guaranteed payment of £43,469,000 to the controlled undertakings, the Exchequer benefited by no less than £62,099,000, compared with £45,657,000 in 1942, and £21,656,000 in 1941. In other words, during the three years which have elapsed since the revised financial arrangements became effective, the railways have earned no less than £129,412,000 for the Exchequer.

During 1943 the pooled gross receipts rose by over £38 million, or 11·12 per cent. compared with 1942; passenger receipts showed an increase of 13·90 per cent.; freight receipts of 8·07 per cent., and miscellaneous receipts 36·68 per cent. On the other hand, expenditure rose only by £20½ million, or 8·16 per cent. In the result, after allowing for an increased loss of £1,218,000 in the net revenue from steamboats, docks, hotels, collection and delivery of parcels and goods, rents, interest and other miscellaneous items, the net pool revenue showed an increase of almost £16½ million, or 18·45 per cent. over 1942.

The White Paper also sets out the difference between maintenance expenditure and the standardised maintenance charges of the controlled undertakings which stand to their credit in the trust funds set up under the provisions of the railway agreement. Including the L.P.T.B., these sums now stand at £92,231,000, an increase of £24,702,000 compared with the position on December 31, 1942.

The Railways Agreement (Powers) Order of December 19, 1941, placed on record in Appendix C the standard revenues of the controlled undertakings, and on the assumption that interest was paid in full on the London Transport prior charge stocks and 5½ per cent. on the "C" stock, these totalled £57,011,968. During the pre-war years this figure came to be regarded as impossible of attainment, yet, despite every discouragement of passenger travel and every effort being made to zone merchandise traffic to reduce unduly long or cross hauls, the net revenue of the controlled undertakings for 1943 exceeded the standard revenues by £48½ millions—truly an amazing figure. Although only those actively engaged in railway operation can appreciate the tremendous value of the traffic which passed during 1943, the fact that the standard revenues should have been exceeded to such an extent must make the immensity of the railways' effort apparent to everyone. As the national war effort steadily reaches its peak, it would not be at all surprising if the figures for 1944 create a still higher record.

The remarkable figures for 1943 will doubtless strengthen the pressure from certain railway stockholders for a revision of the agreement, on which point the railway Chairmen have agreed to forward to the Chancellor resolutions passed by stockholders after the close of the recent annual meetings. Although the Chancellor's reactions are not yet known, it should be remembered that Article 11 of the Railway Control Agreement expressly provides that the Minister may allow an additional charge to maintenance in respect of abnormal wear and tear experienced during the control period as compared with the base period. The railways should have no difficulty in establishing a claim in respect of abnormal wear and tear of a number of assets and, on the figures set out above, they could reasonably expect the Chancellor to take a generous view of any such claim.

"Select Committee" Report on Rail and Road Transport

IT is somewhat of a coincidence that two very important White Papers concerning the wartime operation of the railways should have been published almost simultaneously. The first, which we have dealt with on page 347, gives the estimated financial results of operating the controlled undertakings for 1943. The second is a report* on the subject of rail and road transport which has been prepared by the Select Committee on National Expenditure. It may be mentioned, in passing, that this Committee of M.Ps. was appointed by the House of Commons to examine the current expenditure defrayed out of moneys provided by Parliament for the Defence Services, for Civil Defence, and for other services directly connected with the war, and to report what, if any, economies consistent with the execution of the policy decided by the Government may be effected therein.

The report indicates that the committee's inquiries concerning rail and road transport commenced in June, 1943, but because of the completion of a number of railway capital works to facilitate the working of wartime traffic and the introduction of a large measure of control over road transport by the Ministry of War Transport, together with certain other relevant factors, the committee more recently has reviewed the transport situation as a whole. Dealing first with railways, the committee summarises the arrangements for their wartime control and operation; the financial arrangements associated with Government control: the financial results of operation between 1940 and 1942 inclusive; and proceeds to comment on such matters as locomotives and wagons, labour, zoning of traffic and the alarming increase in thieving. Its comments on these matters are dealt with below.

The Railway Executive

Under this title the committee outlines the arrangements for the wartime operation of the railways, but without desiring to be in any way pedantic we would point out that its summary is inaccurate in some minor respects. The controlled undertakings now operate under the jurisdiction of the Railway Executive Committee which was appointed by the Minister of Transport to act as his Agent, not "the Railway Executive" as stated in the report. Further, the report is also incorrect in stating that the executive is composed of the General Managers of the respective undertakings as the committee consists of the General Managers of the four main-line railways and the Chairman of the London Passenger Transport Board. Although it is probably technically correct to describe the Railway Controller as an independent Chairman, it should be borne in mind that in August, 1941, Sir Alan Anderson, G.B.E., was appointed by the Minister of War Transport to be "Controller of Railways," to give him his official title, and also Chairman of the Railway Executive Committee.

Financial

The report recalls how, despite the fact that during the ten years preceding the war the main-line companies failed to earn their standard revenues, they nevertheless spent during those years about £120 millions on capital account. The committee

* Government Control of Railways. Cmd. 6512. Printed and published by His Majesty's Stationery Office. Price 1d.

* Third report from the Select Committee on National Expenditure, session 1943-44, "Rail and Road Transport." Published by His Majesty's Stationery Office. Price 3d.

remarks that the railways therefore were, when war broke out, in a favourable position to carry the greatly increased traffic imposed on them. It then mentions that about £10 millions has been spent since the outbreak of war on capital account in connection with works mainly for the purpose of facilitating the ready exchange of traffic between the companies, such as doubling and quadrupling of tracks, enlargement of marshalling yards, etc. It is correct in stating that this expenditure was essential because of the increased use which had to be made of western ports under war conditions, but it is completely wrong in its statement that the £10 million expenditure has been largely responsible for the railways being able to carry a wartime increase of approximately 50 per cent. in traffic. The facts are that the vast capital expenditure incurred by the companies between 1928 and 1938 brought their undertakings to that high state of efficiency which has enabled them to function so satisfactorily under a load almost twice as heavy as that envisaged when their standard revenues were originally fixed. The £10 million subsequently expended was simply to meet the utterly unexpected turn in the war which made it necessary to transfer to the west coast a large part of the load which the lines to the east coast had been designed to bear, and also to provide for the transport for long distances inland of millions of tons of coal which normally is conveyed only a few miles from the colliery to the port and for which many millions of pounds had been expended by the railway companies in the port areas on the provision of hundreds of miles of storage, etc., sidings and the necessary shipment facilities.

The Committee then outlines the financial arrangements associated with Government control, but when contrasting the payment of the fixed sum of £43,469,000 a year under the revised arrangements from January 1, 1941, with the former minimum payment of £43,500,000 it remarks that under the new agreement "the railways were relieved from the burden of costs of repairing war damage, this risk being transferred to the scheme applicable to all public service undertakings which has yet to be submitted to Parliament." This is scarcely a fair summary of the position, as although under the previous arrangements war damage could be charged against the control account up to a maximum of £10 millions in any one year, the draft public utility scheme proposes that such utilities, including the railways, shall bear 50 per cent. of the aggregate cost of war damage applicable to their group, hence the somewhat cryptic remarks of the railway Chairmen at the 1942 meetings that "while it is considered that provision for the liability of the Company for war damage is essentially a post-war problem, its incidence has been borne in mind in dealing with the accounts for the past year"; a statement which has been repeated in slightly different words subsequently.

Operating Costs

The committee remarks that, although the railway companies (presumably it means "controlled undertakings") have no direct incentive to keep their operating costs down, because in all circumstances they receive the fixed sum of £43,469,000 a year, it is only reasonable to assume that those responsible for the day-to-day management will endeavour to run them as efficiently as practicable so that "when full control is resumed one year after the end of the war the undertakings will be in the best state to meet post-war competitive conditions." The committee may, and probably will, be in error in stating that the railways will resume control of their undertakings one year after the end of the war, as the agreement provides for control by the Minister to be continued for a *minimum* period of one year after the end of hostilities to give time for the operation of any statutory machinery governing the level of charges. It is also incorrect in stating that the new agreement relieves the railways from the necessity of raising charges as railway operating costs increased. This was not the responsibility of the railways under the first agreement, but that of the Minister of Transport, and even under that agreement it was never fully implemented.

The committee then refers to the rise in salaries and wages and locomotive coal costs between 1938 and 1942 amounting to nearly £56 millions and points out that between 1940 and 1942 railway receipts increased by £95½ million and expenditure by £48¼ million. From this it argues that a close watch over railway operating expenditure is essential from the point of view of national economy. On this statement three comments occur to us. The first is that the railways have no option but to pay increased prices for locomotive coal as the frequent increases made since the war have all been authorised by the Ministry of Fuel & Power. The second is that all general increases in wages and salaries since the war have been made with the knowledge of the Railway Executive Committee and the Minister. The third is that few people with any knowledge of railway operating would criticise the margin of 50 per cent. net revenue earned from the additional revenue secured in 1942 compared with 1940.

Locomotives and Wagons

The committee opens this paragraph with an unfortunate phrase when it states "Some misconception appears to prevail with regard to wagons," because it then proceeds to state that the "railways have requisitioned practically the whole of the privately-owned railway wagons on rental terms." In a following sentence it reiterates that the bulk of the railway wagons are owned or hired by the railways, so it is evident that some misconception exists with them! The facts are that the Minister of Transport, by virtue of his powers under the Defence Regulations, 1939, requisitioned on September 3, 1939, all privately-owned wagons, other than certain special types enumerated in his Order. The terms of compensation were subsequently agreed by the Minister direct with the wagon owners and, although the railways were in no way responsible for the arrangements made, the Government made it a condition of the Railway Control Agreement that the financial results should be included in the railway control account. Finally, to make matters clear, we would point out that the owners of railway wagons requisitioned by the Minister receive compensation under the Compensation (Defence) Act, 1939, for the use of their wagons; the Government are responsible for the cost of repairs and maintenance (but not replacement); but any trader desiring to use any requisitioned wagon has now to pay wagon hire which, of course, was not chargeable before the requisitioning of the wagons. The sums received by the railways from wagon hire and the cost of compensation and repairs and maintenance are credited and debited to the control account respectively, in accordance with the provisions of the Railway Control Agreement. The committee is quite correct in its main point that practically all the wagons in the country are now controlled by the railway companies, and in railway opinion this control has had very beneficial results. Dealing with the shortage of wagons the committee remarks that there is no real shortage, but an apparent one which has been created by the time taken to unload. This, it states, is due largely to lack of engines to clear the sidings, which is caused in turn by an insufficiency of operating staff.

The committee records the difficulties experienced by the railways in dealing with the vast wartime traffics with their serviceable rolling stock because of the loss of locomotives sent overseas, the number loaned to Government departments, the utilisation of railway workshops on Government work instead of their normal engine construction work, and the abnormal repairs required to keep in service locomotives which would normally have been scrapped. They have been further handicapped by the call up of skilled mechanics to the Services. They also make the point that it was necessary to allocate skilled workers to adapt for use on the British railways the locomotives brought over from the United States. It is, of course, very difficult for a committee of non-railwaymen to give the correct weight to the manifold considerations involved, and it should be pointed out that the labour required to adapt the U.S. engines had a comparatively minor effect on the general locomotive position, particularly when regard is had to the material benefit subsequently derived by the railways from the loan of a large number of these engines. Further, no mention is made of the loan to certain companies of a large number of British "austerity" locomotives.

Labour

The committee states that as the railway workshops are now obtaining release from their Government contracts, the locomotive repair and construction position should improve "provided that the necessary operational staff is available." It also suggests that although the supply of locomotives and wagons might be more adequate, there appears to be a sufficiency of both to move a considerably greater volume of traffic but for the fact that there is not the manpower available in adequate numbers. It further reports that both drivers and firemen are lacking to man the locomotives required and that a substantial increase in the labour force is required to cope with normal wastage due to retirements, etc., and to supply future needs. Yet, notwithstanding this imperative need, numbers of railwaymen are still being called up for the Services, and others are actually being directed into other industries! The committee stresses that this question of manpower is imperative and recommends that not only should there be a cessation in the call up of railway workers, but that a steady influx of labour should be directed to the railways. With these conclusions we entirely agree, but we must confess to a feeling of amazement that, at this most vital stage of the war, it should even be necessary for a non-technical body such as a Select Committee on National Expenditure to direct the attention of the Government to such an elementary matter!

If the requirements are so obvious to a body of non-railwaymen, they must have been doubly patent for a very long time to the Railway Executive Committee, the Controller of Railways, and the Minister of War Transport. It is inconceivable

that the railway labour position should have been overlooked but the melancholy fact remains that the Minister of Labour until quite recently has not been moved to give the railways preferential treatment in the supply of labour. The Minister of War Transport, who is responsible for the operation of the railways during the war, may doubtless have a good reply to this point, but *prima facie* it is difficult to see why the highest possible priority was not given to certain essential classes of railway labour requirements months ago, even to the extent of directing men from other industries. We understand that steps are now being taken to rectify this regrettable position. Incidentally we notice that the committee refers only to the men required for *operational* work. To railwaymen this denotes traffic staff such as shunters, guards, etc., but there is an equal, if not greater, need for labour for servicing locomotives in running sheds and for workshop labour, such as boilermakers and fitters for repairing and constructing locomotives, and it is to be hoped that these requirements will also be covered. It is fully recognised that there is a scarcity of suitable men for these jobs, but it should have been obvious to the authorities concerned months ago that it is useless increasing the output of munitions and coal and neglecting the means of transporting them to the required destination. As the committee refers to miners not being able to understand the necessity for their maximum efforts when they see that the coal they win cannot be carried away, it is pertinent to suggest that consideration might well be given to the desirability of directing the "Bevin boys" to the railways instead of the mines, for, say, one month, where they could be used for engine cleaners and so enable the latter to be up-graded to firemen and firemen to drivers.

Zoning of Traffic

The committee mentions that zoning of traffic has been operative for some time but it is difficult to quantify the actual economies which have been secured. It reaches the conclusion, however, that zoning has effected appreciable economies in rail transport, a statement which will be generally agreed. It will be appreciated that the railways have no power to zone traffic, this being a matter for the Government Departments concerned.

Thieving

The committee indicates that it has been impressed with the alarming extent to which the railway undertakings suffer from theft as compared with the losses experienced pre-war; foodstuffs, drinks, and towels being the items by which thieves are chiefly attracted. After recording the difficulties in preventing such nefarious practices under blackout conditions, the committee urges that in the interests of the conservation of national resources, drastic action is called for on the part of the authorities. Its remarks under this head are unfortunately fully justified, and it is cold comfort to know that road transport undertakings report a similar experience. Railway police and civil police are actively co-operating, but the problem is a national one arising largely from war conditions.

Conclusions

The committee refers in appreciative terms to the immense contribution to the national effort which the railways have made in increasing measure since the outbreak of war. It records that in spite of the call up of thousands of experienced men for the Forces, hostile air attacks, blackout and fogs and other hindrances to traffic, the railways and their employees have stood the strain magnificently. It also stresses the fact that in spite of the immense growth of traffic and the enormous increase in work which has fallen upon the personnel—from the highest positions to the lowest—no corresponding financial advantage is accruing to the railway managements or the railway stockholders. Finally, it affirms that the financial arrangement between the railways and the Government is one of undoubted advantage to the State, a statement which many stockholders will confirm.

Recommendations

It summarises its recommendations as under:—

(1) That not only should there be a cessation in the call up of railway workers, but that a steady influx of labour should be directed to the railways.
(2) That in the interests of the conservation of national resources drastic action should be taken by the authorities to deal with the alarming extent to which thieving has increased.
(3) That in spite of what has been done already to impress on the public the paramount importance of travelling as little as possible, still further efforts should be made in this direction; and that immediate consideration should be given to the formulation of plans for the compulsory staggering of holidays.

Road Haulage Organisation

The committee records that the Road Haulage Organisation of the Ministry of War Transport was introduced in May, 1943, with the aim of conserving oil and rubber, the main principle being to make road haulage subsidiary to all other forms of transport. It records that the main outline of the organisation was founded on the taking over of as many of the larger road haulage concerns as controlled undertakings, which were to be the frame work of the operational side. Unit Controllers were then appointed to be responsible for co-ordinating the traffic efficiently and economically, for settling the haulage charges and for providing the necessary staff. It reports that a few months after the introduction of control, complaints and criticisms began to be heard and these have increased rather than diminished. These complaints fall under seven heads:—

(*a*) The units are too large;
(*b*) The unsuitability of the Unit Controllers for their present duties;
(*c*) The allotment of duties to vehicles was uneconomical;
(*d*) Increased running costs and freight charges;
(*e*) Sufficient use not being made of higher executives in the industry;
(*f*) The clerical work demands; and
(*g*) Drivers sent on unfamiliar routes.

The committee summarises the complaints made under each head and the replies given by the Ministry to these points. As to a suggestion that the complaints are exaggerated and only represent isolated cases the committee considers that the volume of evidence actually put before it, apart from the criticisms which have been made in Parliament and the Press, is too great to be dismissed as originating from a factious few.

Finally the committee recommends:—

(1) That the Ministry should re-examine immediately and closely the present freight charges and adjust them where necessary.
(2) That the Ministry should re-examine the routine office work entailed by the Road Haulage Organisation with a view to simplifying it as much as possible.
(3) That a close scrutiny should be made of the work of Divisional and Area Haulage Officers and more particularly that of Unit Controllers, with a view to the more economical use being made of lorries and their carrying capacity.

Air and the Ministry of Transport

THE future of civil aviation is at the moment in a double sense "in the air." It has been the subject of debate in both Houses of Parliament. We have been consulting the Dominions, and there will shortly be a conference between the United States and ourselves, in which the Empire will speak as a unit. Much of this concerns the international aspect of air communications, but this is inseparably linked with our own domestic problem as to what form the encouragement of civil aviation after the war is to take in this country, and by what authority or department the necessary control and regulation is to be exercised.

However widely the critics may differ on almost every other point, they are all united in desiring and urging that the responsible authority should *not* be the Air Ministry. The proper function of the Air Ministry as a Service department is felt to be purely military, to which everything else would inevitably tend to be subordinated, and it is still remembered how civil aviation suffered after the last war. Therefore parliamentarians and critics are virtually unanimous in demanding that a separate department or ministry be set up to look after Civil Aviation. This does not mean that they want State air services, but only that such control, encouragement, and regulation of licensing as must necessarily fall to the State, should be the care of a special minister. It is generally conceded that the active organisation and development of air services operating from this country should be carried on primarily by means of a "chosen instrument" and the British Overseas Airways Corporation is considered on the whole as the best instrument for the purpose. That is not the same as conferring a monopoly. Other air services could be allowed and even encouraged to operate alongside the B.O.A.C. lines, especially within these islands, provided there was no unnecessary overlapping or duplication, but all would be subject to the same overriding conditions and requirements. The shipping companies are already busy promoting airlines, and the railways, which ran air services before the war, may be expected greatly to develop this branch of their activities.

not only within the United Kingdom but presumably also to the Continent.

On their part, the Government has received the demand for the setting up of a Department of Civil Aviation with a considerable lack of enthusiasm. It says vaguely that this had best await some future reorganisation of the machinery of Government. Certainly that machinery is getting more and more complex and cumbrous, and in these days of the multiplication of ministers and departments no sensible person would welcome yet another ministry, however desirable its establishment might seem on general grounds. What then is the solution?

After the last war, the short-lived Ministry of Reconstruction issued reports on the machinery of Government, the conclusions of which are still worth reading today, but the principal material results were the setting up of the Ministries of Health, Labour, and Transport. A Ministry of Transport indeed had been decided on for political reasons connected with the taking over of the railways, but as readers of this journal know, the proposal to run them under the direction of the State was abandoned, and instead the Railways Act of 1921 was passed, which in two years amalgamated the railways into the big four systems of today. But from the first, the Ministry of Transport, which survived the "axe" of its own creator, was conceived on a much broader basis than rail transport. Not only were various functions taken over from the Board of Trade, and light railways, canals and coastwise shipping brought under control, but the work of the Road Board, under its then Director, Sir Henry Maybury, was added to the new Ministry, and later the Minister became responsible for the Electricity Commission.

The first Minister of Transport, Sir Eric Geddes, had very comprehensive plans for his Department. The Bill was first drafted for a Ministry of Ways & Communications on the Continental model, which normally included posts and telegraphs, but the difficulty of domiciling such a conception here, apart from Whitehall irreverence in persistently referring to the project as the W.C. Ministry, caused the original plan to be modified. Nevertheless, the first Minister had a definite ambition to widen the scope of the Ministry far beyond the functions it eventually assumed. He had hoped to control the work of the Post Office, and doubtless if broadcasting had then reached its later development, he would have cast an eye on the ether. What is certain is that he did plan to bring civil aviation, then in its infancy and suffering from Cinderella neglect, under the Ministry of Transport.

Logically, this position was quite correct. Land, sea and air transport have the same purpose and objective, and despite their different media and methods, are subject to the same general principles. This is now fully recognised in the case of rail and road traffic, but it was certainly not the case at first, for although roads were placed under the Ministry the roads department was almost autonomous and confined itself mainly to road construction and classification without interfering with road transport. It was not until the railway companies themselves took action that some measure of co-ordination was attempted. Similar action in promoting air transport is pointing the way to further co-ordination, and the pressure of events in this war has widened the scope of the Ministry to include control of seagoing shipping. It is now the Ministry of War Transport.

All developments have shown the necessity of co-ordination and a common plan and control for all forms of transport, so that they do not develop without reference to each other, but as related and articulated parts of a larger whole, guided by a considered and balanced long-range policy. If this can be achieved in all forms of land and water transport, rail, road, river and canal, and coastwise shipping, and even in oceanic shipping, then surely it would be a great mistake to leave out air transport, which is likely to undergo the most phenomenal and rapid development of all in the near future, and cannot avoid having repercussions on existing forms of transport. There is ample scope for every instrument of transport, rail, road, water, and air, and each has its own proper sphere; but it would seem a great pity, in the light of past experience, to repeat earlier mistakes now, and to divide authority for the different forms of transport. We have seen what happened when railways and roads were left to fight it out together, when sea services came under the Board of Trade, and air services would presumably be relegated to another authority. There is no reason why healthy and legitimate competition should not take place, but this would be freer and more effective if there were one policy governing the whole field of transport.

Everyone is agreed that the Air Ministry, with its own important job to do, is not the proper authority to concern itself with civil aviation; and the Government is reluctant to set up a special department for the purpose. The rational solution appears to be to place civil aviation under the general control and responsibility of the Minister of Transport, where, although it would have its own expert administration in touch with the Air Ministry, and a substantial measure of autonomy, both it and the other departments of the Ministry could not fail to benefit by the common pool of knowledge and experience of transport principles and methods, and on the whole a congenial atmosphere. On their part, all the undertakings and the public generally would benefit by the knowledge that future development would not be cramped or confused by possibly conflicting policies of different authorities. It would be interesting to have other opinions on this important subject.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Sir Follett Holt

The Buenos Ayres Great Southern Railway Co. Ltd.,
River Plate House, Finsbury Circus,
London, E.C.2. March 27

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—You ask me for an appreciation of Sir Follett Holt. My pen is not one which can do full justice to the task. Yet it is one which one cannot refuse. You have given a record of his achievements, but some record of the man, and what his life has meant for good, is well worth the making.

His work will always chiefly be identified with Anglo-Argentine affairs and in promoting Anglo-Argentine friendship. His life work was devoted to furthering these, and he gave of his strength and great mental powers unsparingly. His mind was ceaseless in active endeavour to find the way and the means to serve both the companies in his charge and the interests of both Great Britain and Argentina.

During the years he lived in Argentina he worked with enthusiasm, audacity and vision. He was amongst the great British pioneers who left their mark on Anglo-Argentine relations for good. He was amongst those whose integrity and honesty of purpose was such that the Argentine people accepted the phrase "Palabra inglesa" as the assurance of rectitude, honour and sanctity of contract. Those who came after him are set the highest standard; they have a great heritage. Follett Holt has left a memory in Argentina which will serve his fellow countrymen as a guide and torch of inspiration, inspiring them never to let the standard of British dealings fall to any lower level than that he set. Those who come after may always carry their heads high in the knowledge that the Englishman's word—and that includes all Britain's word—is his bond; that where he adventures he comes to co-operate, to create, and not to harm or exploit. Such a one was Follett Holt.

Then the man as he was, in himself, as I knew him. He enjoyed intellectual achievement; he was always ready to admire and assist those who showed such qualities. He looked about for younger men and helped them in his quiet way to make good. He was full of romanticism at heart, in spite of his business successes. Idealism formed much of his make-up. Whilst not sparing those he thought neglecting or failing in duty, he yet was a man of infinite gentleness and kindness, and ever ready to extend sympathy and help where he found distress or sorrow.

I believe the greatness of Follett Holt and the secret of his success is to be found in those very qualities. Though his loss is mourned today, the memory of his life will live in the heart of many as an inspiration to live the better, following his example of high integrity and dedication to service, ruled by modesty, kindness, and gentleness.

Yours, etc.,
MONTAGUE J. EDDY,
Chairman

Railway Control Agreement

Barcheston House, Cheadle,
Cheshire. March 24

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have read carefully the reasons which Mr. Austin E. Kavanagh, the Chairman of the L.N.E.R. Stockholders' Association, gave at the last annual meeting of the L.N.E.R., for the immediate revision of the 1941 Railway Control Agreement. His reasons are unanswerable. The majority of the stockholders in the railway companies hold Mr. Kavanagh's views and demand an immediate revision of this Agreement.

The directors of the railway companies are the stewards and servants of the stockholders. What are the views of the Directors of the railway companies, who receive £30,000 a year in directors' fees for representing the stockholders?

Is it not time that the stockholders knew definitely whether

the directors—their representatives—are on their side or against them? The stockholders naturally prefer that their representatives should be on their side in their fight to obtain their legal and moral rights—namely, the payment to the railway companies of their standard revenues as allowed under the Railways Act of 1921. If, however, there are any directors, who for some reason or other are not willing to support wholeheartedly the claims of their stockholders, would it not be wise on the part of the stockholders to replace these directors by men who will support their claims? This the stockholders have the power to do, if they will all join their own union.

The London & North Eastern Railway Stockholders' Association is now fighting the battle for *all* the stockholders in the railway companies. Fellow stockholders, do therefore in your own interests join L.N.E.R. Stockholders' Association immediately.—Unity is strength.

Yours faithfully,

ERNEST BUTLER ROWLEY

Post-War Passenger and Commercial Transport

Bristol Railway Circle,
33, Upper Belgrave Road, Clifton,
Bristol, 8. March 24

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I lay no claim whatever to any technical or practical knowledge of railway working, apart from such limited railway travel as I have experienced and an insatiable desire to read anything in the way of good, sound literature on railway subjects. My reason for being President of the Bristol Railway Circle I consider to be a wartime one, which office I am, as it were, "keeping warm" until such time as, the war being over and our old members now on Service having returned, I can hand over to someone who is far better qualified than I am.

I have been wondering whether the future will see as many air-routes over the country as there are now railways. Although it may be rather noisy if one happens to live or work alongside a railway, yet one can still find quiet spots in the country or at the seaside, with the sound of trains either entirely absent or no more than a pleasant reminder of their existence some way off, but with aircraft of all sizes and types droning overhead all day (and all night?) where will one find any peace and quiet?

I think there will be great scope for railways after the war, but I believe that they will have to publicise themselves a good deal, and prove to the travelling public that they can carry passengers in as great if not greater, comfort than by any other form of transport, and at the same time provide a greatly improved means of goods transport.

I believe that if the railways could enlist the whole-hearted co-operation of the press in bringing before the travelling public the advantages and comforts of modern rail travel, they would be doing a good thing for themselves and everybody concerned, but the railways would have to see to it that much needed improvements, especially in branch, cross-country, and suburban-line services were made, and the press would have to ensure that those responsible for writing articles about the railways first got their *facts correct* and then *published them correctly!* One frequently comes across curious mis-statements in describing railway events which lead one to think how little some of these worthy pressmen seem to know about railway matters.

The same might, perhaps, be said of the majority of the travelling public, who have little or no idea of the vast organisation that is behind any and every railway journey. But if some knowledge of this organisation could be given to them by the railways themselves through the medium of a well-informed press, would it not be doing a good service to all concerned? Something of this sort has, I know, already been done by the publication of official handbooks such as "British Railways in Wartime" and "Transport Goes to War," but not everyone buys handbooks. Most people, however, either have a newspaper in the house or see one somewhere every day, and that is where I think railway advertising and publicity should appear.

I am, of course, concerned principally with the post-war years, when the slogans will be not "Is your Journey really Necessary?" but—"Making a Journey? Then Travel by Rail—It's Quick—It's Comfortable." Or—"Thinking of Holidays? Then Let your Holiday Journey be Pleasant and Comfortable—Book your Seats on the Cornish Riviera Limited, Atlantic Coast Express, Brighton Belle, Bournemouth Belle, Pines Express, etc." Or again—"Going North on Business?—The Railways will get you There with Speed and Comfort by the Coronation, Coronation Scot, West Riding Limited (if stream-line trains are still in the fashion!) or by the Flying Scotsman, Mid-day Scot, Mancurian, etc."

I know that all these and many other excellent train services were fully advertised before the war and will be again, I am sure, but let this be done not merely by posters and press advertisements, but by informative and well-written articles.

We have book, stage, film, and music critics and commentators—we have motoring and air correspondents—why not railway correspondents and critics who will keep the public well-informed on current railway matters?

At the same time, let the railway companies bear in mind the very considerable number of travellers who use cross-country, branch-line, and suburban-line services, and so improve these services (where and whenever possible), in timing, in frequency, in cleaner and more comfortable carriage stock, as to encourage these travellers to look forward to their journeys with pleasure instead of with doubt and scepticism (Not—"Wish I'd used the car now, should have got here quicker and with much less fuss!"—But—"Glad I came by train—just as quick, and you can stretch your legs in a corridor coach which you can't do in a motorcoach unless it stops and you get out, and then you're not in the coach, and it might be raining outside!").

Yours faithfully,

R. L. WILKINS,
President

Wolverton Pork Pies and the Battle of the Gauges

Essex House, Essex Street,
London, W.C.2. March 22

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Although I understand that no contemporary specimens have been preserved for the centenary next year of the Gauge Commission, the fact that the pork pies of Wolverton, referred to in Mr. G. A. Sekon's letter, played a part in the Battle of the Gauges, is shown in the "Autobiography of Sir George Airy" (Cambridge University Press, 1896) on page 175. When in December, 1845, Airy, the Astronomer Royal, as one of the Gauge Commissioners, went to view the speed tests between York and Darlington, he found occasion to write to his wife the criticism—though it did not appear in the Gauge Commissioners' official report—that pork pies on the narrow-gauge system were not of standard quality. In this letter, dated December 30, 1845, he wrote:—

"Our affairs yesterday were simple: we reached Euston Station properly" (*Bradshaw* shows the departure time to have been 9 a.m.), "found Watson there, found a carriage reserved for us, *eat pork-pie at Wolverton* (*not so good as formerly*), dined at Derby, and arrived in York at 5.20. On the way Watson informed me that the Government have awarded us £500 each. Sir F. Smith" (ex-Inspector-General of Railways and another of the three Gauge Commissioners) "had talked over the matter with us, and I laid it down as a principle that we considered the business as an important one and one of very great responsibility, and that we wished either that the Government should treat us as handsomely or should consider us as servants of the State acting gratuitously, to which they assented. I think the Government have done very well. Mr. Hudson, as I have said, met us on the platform and pressed us to dine with him (though I had dined twice). Then we found the rival parties quarrelling, and had to arrange between them. This prevented me from writing for the early post. (I forgot to mention that Saunders, the Great Western Secretary, rode with us all the way). This morning we were prepared at 9 at the Station for some runs. Brunel and other people had arrived in the night. And we have been to Darlington and back, with a large party in our experimental train. George Arthur Biddell rode on the engine as representing me. But the side wind was so dreadfully heavy that, as regards the wants of the case, this day is quite thrown away."

Anyway it was tactless of the narrow-gauge party to feed a Gauge Commissioner on inferior pork pies. It seems probable, however, that a Gauge Commissioner might have got a still worse pork pie at broad-gauge Swindon, if one can judge from the following "apology" which Brunel wrote in December, 1842, to Mr. Griffiths, the sub-contractor at these refreshment rooms, which proved such an incubus to the Great Western Railway:—

"Dear Sir,

I assure you Mr. Player was wrong in supposing that I thought you purchased inferior coffee. I thought I said to him that I was surprised you should buy such bad roasted corn. I did not believe you had such a thing as coffee in the place; I am certain that I never tasted any. I have long ceased to make complaints at Swindon. I avoid taking anything there when I can help it.

Yours faithfully,
I. K. Brunel"

(See MacDermot's "History of the Great Western Railway," Vol. I, page 155).

Yours faithfully,

KENNETH BROWN

The Scrap Heap

Two hundred thousand old razor blades have been collected by G.W.R. employees in the last two years; proceeds from the sale of those fit for reconditioning have been used to buy comforts for colleagues serving in the Forces.

* * *

Hearing that L.M.S.R. employees were collecting used razor blades in aid of the R.A.F. Benevolent Fund, an old lady in Wales has sent to the Birmingham District Passenger Manager six "cut throats," a hone, and fours pairs of very old steel type spectacles. Since October last, when the L.M.S.R. special razor blade collections began, a million blades have been recovered. Their sale for reconditioning will produce nearly £300 for the R.A.F. Benevolent Fund.

* * *

Early Railway Enterprise

An interesting example of advertising in the early days of railway development in Scotland has recently been brought to light in an L.N.E.R. office in Glasgow. The advertisement was exhibited by the original Edinburgh & Glasgow Railway, which was acquired in 1865 by the North British Railway, a constituent at grouping of the L.N.E.R. The advertisement is addressed to builders, informing them that "parties who may build villas within a mile of any of the stations on the line, not being town stations," would be granted free tickets for periods varying according to the "certified cost of the villa." It is not known how many persons availed themselves of the offer, nor exactly when it was made, but the Edinburgh & Glasgow Railway began working in 1842, and it is probable that this scheme was introduced in the early days. The advertisement, measuring some 11 in. x 10 in., is printed on paper mounted on strawboard and set in a small wooden frame. As it was varnished, the print is still bold and legible. The printer was Hugh Paton, of 10, Princes Street, Edinburgh, now Hugh Paton & Sons Ltd., the well-known Edinburgh printers whose connection with railway business has lasted since the early days of railways in Scotland.

* * *

"Uno"

One of the experts in the information bureau of the Canadian National station at Winnipeg has admitted that on his first evening on duty he received a telephone inquiry that completely stumped him.

"When can I get a train to Uno?" a feminine voice inquired.

"Where are you going, madam?" he countered.

"Uno," was the reply.

"But I don't know. Tell me where you are going."

"Uno," shrieked a now angry voice. Why don't you have a man there who knows something?"

"We do, madam, but just now he is out to supper. Can you call again later?"

After hanging up the receiver, the information clerk had a look at his time-table, and was disconcerted to find that the Canadian National Railways do possess a station called Uno. It is between Rivers, Manitoba, and Melville, Saskatchewan.

* * *

Courtesy Cure for Travellers' Nerves

L.M.S.R. porters, ticket collectors, and all members of the staff who deal with the travelling public are to undertake a "Courtesy to Passengers" drive, even to awkward passengers. Motto for railway employees is now to be: "A soft answer turneth away wrath."

To see how the new advice is working, I visited Euston and St. Pancras. Here are some samples of interchanges I heard between passengers and porters:

An American major: "Does this train go to Manchester? When does it get there? Is there a car on it where you can eat? Will it be late? Can I get a taxi at Manchester? Will I be able to get a room reservation there? What towns does this train go through?"

Time to say it: 17 seconds.

The replies: "Yes. 3.54. No. Sorry, I couldn't say. Rugby and Crewe are the biggest. Hope you like England. Have a good journey.

Time: 11 seconds.

Harassed woman with three children: "What platform for Luton, please? Do I have to change? Which part of the train is there most room? Are these tickets all right to come back next week?"

It was a male ticket collector who answered these, pat and politely.

Note.—But the L.M.S.R. has no intention at present of issuing any guidance to the passengers on how to deal with an awkward porter.—*From "The Evening News."*

* * *

Where is It?

TEMISCOUATA RAILWAY COMPANY

Notice is hereby given that the ANNUAL GENERAL MEETING of the Shareholders and Registered Bondholders of the Temiscouata Railway Company, for the election of Directors and other business, will be held on Tuesday, the 28th day of March, 1944, at 4 p.m., at the Head Office of the Company, in the City of Riviere du Loup.

By Order,
L. N. QUELLET, Secretary.
Riviere du Loup, January 10, 1944.

* * *

Tailpiece

(The signals are against holiday travel this Easter)

A corner you know in the far countryside
Where the meadows are rich and the woodlands are wide,
And thither at Easter by rail you would go.
Your instinct says "yes," but the signal says "no."

The hedgerows you love will be sweetly in shoot,
The orchards alluring with promise of fruit,
The birds be a-building, the rivers in flow,
But not for your eyes if the signal says "no."

Disappointed? No doubt, but whatever you say,
Those beauties are static and won't run away.
They will still be the same in an Easter recess
When instinct and signal agree and say "yes."

E. C.

A POOR TIME TO REMOVE THE CREW

"One good railroad man on a railroad is worth a thousand railroad men in the army"—Commissioner J. Monroe Johnson, I.C.C.

[Reproduced from the "Railway Age"

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Post-War Schemes

With the appointment of Lt.-Colonel W. Marshall Clark as Chief Technical Officer of the newly-formed Reconstruction Department, the South African Railways & Harbours Administration is giving immediate attention to post-war development problems (see our March 3 issue, pages 223 and 231—ED., *R.G.*). The department will undertake the electrification and construction of lines and such track alterations and improvements as may be considered of major importance. This work normally would be carried out by the Chief Civil Engineer's Department, but there is so much harbour work in hand and such a wide field of maintenance work for the officers of this department that it has not been considered advisable to add post-war schemes to their responsibilities.

The Minister of Transport (Mr. F. C. Sturrock), when presenting the railway budget recently, announced an extensive programme, to be carried out immediately after the war, which provides for an expenditure of £30,000,000. The Minister pointed out that it did not represent a relief measure, but was designed to meet the needs of the Union in the light of developments in transport and town-planning.

Works for which the programme provides include electrification of the Cape Town-Touws River line (conversion of the Gunhill-Harrismith section is also under consideration); quadrupling and doubling of various lines, including the doubling of those between Bloemfontein and Kroonstad and between Pietermaritzburg and Ladysmith; extensive track improvements, notably on the Cape Northern system, for which large-scale deviations are proposed to provide for regrading and easing of curves; station improvements at Johannesburg and elsewhere, and new stations at Cape Town, Port Elizabeth and De Aar; and new mechanical workshops at Durban, East London and Pretoria.

UNITED STATES

Moffat Tunnel Route Reopened

At 12·01 a.m. on December 1 the Moffat Tunnel route of the Denver & Salt Lake Railway (a subsidiary of the Denver & Rio Grande Western Railroad, which also uses the former's route), was reopened to traffic after having been closed since September 20. As recorded in the February 18 issue of *The Railway Gazette*, a fire (of unknown origin, but caused in all probability by locomotive sparks) broke out in single-track Tunnel No. 10, which is lined with timber; the tunnel is in an isolated position, well away from any public highway, and fire-fighting was very difficult; the lining burned out, and the lack of support resulted in cave-ins which blocked the line.

More than 200 experienced men worked daily to clear the tunnel, making use of equipment bought, not only from Colorado, but from states as far away as Utah, Idaho, and New Mexico, with the result that reconstruction was completed in just over ten weeks. While the tunnel was closed, traffic from Denver to the west was diverted by the old route *via* Pueblo and the Royal Gorge, which is 175 miles longer, and more heavily graded. The latter became very congested, as traffic was then reaching its seasonal peak. Many of the D.R.G.W.R. employees worked round the clock until sufficient D.S.L.R. men from the closed line could be transferred temporarily to the Royal Gorge route.

Termination of a Receivership

On December 1, 1943, after more than twenty years of bankruptcy, the Minneapolis & St. Louis Railroad Company was reorganised as the Minneapolis & St. Louis Railway Company, with a wholly-owned subsidiary, the Minneapolis & St. Louis Railroad Corporation, and commenced operation free from the trammels of receivership.

This success has been largely due to the energy of the receiver, Mr. L. C. Sprague, who has become President of the new companies. During the last nine years over $14,000,000 was spent in rehabilitating the M.St.L.R.; 82 locomotives were rebuilt and their tractive effort increased by 35 per cent.; 14 diesel-electric shunting engines were placed in service; 2,900 new or rebuilt freight wagons were added to stock; and a considerable amount was spent in improving the tracks with heavier rails and more ballast, to permit higher speeds. The M.St.L.R. serves mainly agricultural country, but its two lengthy main lines also provide an important "bridge" route from east to west between certain of the larger systems, whence the title, the "Peoria Gateway Line."

Railway Pay in 1943

For the whole of 1943, U.S.A. railways paid their employees a total of $3,533,000,000, an increase of 20 per cent. over the 1942 figure. In the three years from 1941 to 1943 inclusive, the average earnings of every American railway employee rose from $2,045, through $2,307, to $2,605 in 1943. For every hour the pay worked out at an average of 78.0 cents in 1940, 85.2 cents in 1942, and 92.9 cents in 1943. The total number of railway employees, which was as large as 1,857,674 in 1923 (although the aggregate wages were then only $3,004,000,000, or $1,617 an employee a year), during recent years fell to its minimum in 1933, when the staff of ten years previously had been virtually halved, and 971,196 employees were receiving an average annual wage of $1,405 apiece. By 1940 the total staff had once again passed the million mark, and by 1943 it was up to 1,356,000. In 1943 the average pay was 86 per cent. above that of 1933, but it should be remembered that, with the help of far more powerful locomotives and modernised equipment, the 1943 railway staffs were handling a much greater and considerably faster traffic than were the 1,857,674 employees twenty years earlier.

ARGENTINA

Professional Meetings

The annual general meeting of the Argentine Centre of the Institution of Electrical Engineers was held on December 4 last, under the Chairmanship of Mr. C. G. Barker. The annual report stated that the small number of papers read during 1943 had been due primarily to the fact that most of the members were very busy as the result of many of their colleagues having joined H.M. Forces. The number of members was 50, a decrease of three since 1942; two associate members had left on war service, and one had resigned. Six members were serving in H.M. Forces. The committee for 1944 was elected as follows:—Chairman, Mr. R. Wright; Vice-Chairman: Mr. H. Tabossi; members: Messrs. K. N. Eckhard, G. W. Munday, R. G. Parrott, L. S. Woodhouse, E. I. Mayne, H. J. McPhail and J. D. Smith.

The annual general meeting of the Buenos Aires Association of the Institution of Civil Engineers was held on December 17, 1943. The annual report stated that the number of members on the roll was 105; the decrease of two since 1942 was due to the death of a student on active service and the resignation of an associate member. The number of members serving with H.M. Forces was 19. No award of the Follett Holt premium had been made during 1943, as none of the papers submitted had come within the terms of the award. The committee for 1944 was elected as follows:—Messrs. E. Pilditch, H. A. McGillycuddy, H. L. Stevens, J. H. Taylor, D. G. MacCormack, H. W. Stevens, L. Reynolds, G. H. Austin, R. Williams, J. E. Sandham and R. W. Peake.

The final meeting of the 1943 session of the Buenos Aires Branch of the Institution of Locomotive Engineers was held on December 17 last. Mr. P. W. Dobson, Chairman of the Branch, presided. The subject discussed was "Present-day Fuel Problems Encountered on Broad and Standard-Gauge Railways in Argentina and Uruguay." Five papers dealing with various aspects of the subject were submitted by members.

Buenos Aires Transport Statistics

According to figures published in the *Revista de Estadística* of the Buenos Aires Municipality, the number of passengers carried by the various transport services of the city, and the corresponding receipts, during the first nine months of 1943 were as follows:—

	Passengers	Receipts (pesos)
Trams	329,208,157	31,560,981
Underground lines ...	136,293,939	12,051,378
Buses	308,131'050	32,718,480
Colectivos	53,206,389	7,646,437
Micro-buses	178,015,434	21,714,497
Total (9 months) ...	1,004,854,969	105,691,773

SPAIN

National Railways Results

A few official figures are now available of financial and other results of the Spanish National Railways during 1943. In July, for example, passenger receipts were 52,190,000 pesetas, and exceeded the total attained in June by 8·87 per cent. Revenue from first class passengers amounted to 11,160,000 pesetas; from second class passengers to 5,910,000 pesetas; and from third class passengers to 35,120,000 pesetas. Express goods traffic accounted for 24,590,000 pesetas during the month, ordinary goods traffic for 63,820,000 pesetas, and miscellaneous receipts for 3,610,000 pesetas. Total working receipts in July, 1943, amounted to 144,220,000 pesetas, and exceeded by 4·7 per cent. those recorded for the preceding month, although there was little change compared with July, 1942.

Total expenditure during the month in question was 133,190,000 pesetas, and was slightly above the level attained in the preceding month. Of the total, working expenditure accounted for 24,450,000 pesetas; maintenance of way for 18,130,000 pesetas; fuel and materials for 68,670,000 pesetas; and miscellaneous items for 20,870,000 pesetas.

The mileage covered in August, 1943, was 3,850,200, the highest total attained in any previous month of the year. Of the total, 3,409,290 miles represented steam locomotive working; 142,830 miles, electric locomotive working; 99,360 miles, petrol railcar working; and 198,720 miles, electric railcar working.

The Maintenance of Diesel-Electric Shunting Locomotives on the L.M.S.R.*

Methods evolved as a result of ten years' experience, described by Mr. C. E. Fairburn, M.I.Loco.E., Acting Chief Mechanical Engineer & Electrical Engineer, L.M.S.R.

MR. C. E. FAIRBURN referred to an earlier paper which he had read before the Institution of Locomotive Engineers in 1941, dealing with the evolution of design of diesel-shunting locomotives on the L.M.S.R. His present paper forms a complementary publication on the maintenance aspect, with some general observations on the influence of maintenance and design on one another. As it is now ten years since the first two L.M.S.R. diesel shunting engines went into service, maintenance and overhaul procedure are now established on a fairly definite basis.

The engines are relatively large, medium-speed units, and in normal shunting duties they are called on to deliver only a low average output. Much of the time the output demanded is light; but periodically, when a group of wagons is being accelerated, they have to develop an output at least up to their nominal rating. The average output over a complete shift may be little more than 10 per cent. of the nominal engine rating, but the fluctuations from light to heavy load occur rapidly. These conditions differ from those influencing diesel railcar or main-line locomotive practice in the U.S.A. and elsewhere. There can be no doubt of the success of diesel shunters on the L.M.S.R., and a greater use of them may be expected in normal times.

All the locomotives now in service are operating three shifts a day and either six or seven days a week. The average weekly mileage is 200-250, and the various examinations are carried out at weekly, fortnightly, and approximately monthly, three-monthly, and six-monthly intervals. The first two are carried out irrespective of the actual mileage; the remainder are based on mileages of 800-1,000, 2,400-3,000, and 4,800-6,000. Engine wear figures are based on thousands of hours in service; 1,000 hours may be taken as corresponding to 1,200-1,500 miles, or about six weeks' service.

The minimum requirement when the diesel-electric locomotives were first put into service was that they should be able to work continuously three shifts a day, for at least a week, without any attention apart from a few minor services which could be performed by the driver. This minimum was attained without much difficulty, and the period was later raised to fourteen days, and a period of twenty-eight days can be envisaged. Experience has shown that the original specification was about right; it required a tractive effort of at least 30,000 lb., a maximum speed of 20 m.p.h., a weight of about 50 tons, and a minimum engine rating of 350 h.p. The service weight includes over 2½ tons of fuel, enough for a fortnight's running in the most heavily-worked yards.

The former designs embodied a jackshaft drive for the six coupled wheels, but the last examples to include this figure gave a rather excessive total weight, and the latest examples are provided with axle-hung motors. The good results obtained with forced ventilation for the motors, and with double-reduction drive, have caused these features to be perpetuated.

The original control system involved four fixed engine speeds determined by the loading on the main control spring. These fixed speeds, in conjunction with control of the generator field, gave ten running positions, and a "vernier" controller provided finely graduated intermediate positions. This system proved to be somewhat complex and expensive, and a new arrangement permits continuous variation of the engine speed.

A great deal of attention has been given to engine lubrication. Care has been taken to ensure the delivery of a sufficient quantity of clean, uncontaminated oil. A reasonable degree of oil purity and cleanliness can be ensured by the frequent changing of the oil, but this is an expensive policy even if the contaminated oil is reclaimed and used again. An alternative method is to fit the engine with good filters and other devices for preventing or reducing oil contamination, so that the oil need not be changed except in special circumstances. When sufficient experience had been gained with filters, therefore, a change to the second method was made. Apart from saving in cost, this method keeps the oil clean at all times. The most important improvement concerned the filters. The fine-gauze filters originally fitted could not deal with the smaller particles of metal and carbon produced during running, so bypass filters were added. Two cotton-waste filters are now used in parallel. At normal temperatures they pass 15 gal. per hour, so all the oil passes through once in five hours.

Another important need was the prevention of dilution of the lubricating oil by the fuel oil, whether by direct leakage or by failure of the latter to burn completely after injection. By paying special attention to the design and maintenance of the pipe lines for the lubricating oil, this trouble was definitely eliminated.

The oil is tested for cleanliness and viscosity monthly, and samples are taken for analysis annually. Cleanliness is measured by the "spot" test, in which a drop of oil is placed on a sheet of white blotting paper; and when the oil has been absorbed, the dirt it contained is left on the paper. Standard dropper sticks are used, and the amount of dirt left on the paper is judged by comparison with standard charts. These have ten spots representing equal stages of contamination from 0·01 to 0·1 per cent. of foreign matter. If the latter value is attained the bypass filter cartridges are changed.

Viscosity is determined by a simple device which depends on the time which a steel ball takes to roll down a length of glass tubing containing the oil under test. To avoid temperature corrections, the equipment comprises two tubes, one permanently filled with lubricating oil diluted with 5 per cent. of fuel oil, and the other the sample. If the ball in the sample runs faster than that in the standard tube the matter is investigated.

Despite every effort to clean engine parts during assembly, an appreciable weight of iron particles always remains, and is washed into the lubricating oil during the first few hours of running. A large magnetic filter meets the case with complete satisfaction, but as the size required is rather expensive, the filter is fitted temporarily, and removed after, say, 600 hours' running.

Lubricating-oil consumption is much affected by unnecessary losses such as leaky joints in external pipework; in fact, the only legitimate loss of oil is that which passes the pistons, which should suffice for adequate lubrication of the top rings. The arrangement of the scraper rings is the chief factor affecting the amount of oil passing the piston. The provision of an additional scraper ring above the gudgeon pin reduced the average consumption (over a period of two years) to 5 gal. per 1,000 hours in one engine. Certain improvements in the method of gudgeon-pin lubrication (pressure feed) were made.

The author defines "maintenance" as the work and inspection at running sheds, and "overhaul" as work done at one of the company's main works. As much of the work as possible should be done at the running sheds, so as to minimise the number of visits to the works, with consequent saving in time in transit and inevitable minor delays. The mileage between overhauls has been again increased, as was expected in the author's earlier paper; the figures have risen from 15,000 to 20,000-25,000, or about three years. Service or light overhauls are now introduced between heavy overhauls, spacing out the latter to intervals of about six years (40,000-45,000 miles).

The present maintenance schedule comprises two main divisions, (*a*) electrical and (*b*) mechanical, which are further subdivided according to the frequency of examination required. It has been found possible to substitute fortnightly examinations for many of those formerly carried out weekly on the mechanical side; similarly the former fortnightly examination of the electrical equipment now takes place monthly. Weekly cleaning of lubricating oil filters is necessary.

Some lubrication troubles have arisen in the valve rocker gear; future engines will have a forced-feed system. Valve-spring failures were attributed to insufficiently fine surface finish, and the trouble has been overcome by a more exacting specification. The main auxiliary drive has been improved, and stretching eliminated, by a change from rubber ropes to a rubberised-fabric link drive.

Overhaul can now follow a fixed procedure laid down in the light of extensive experience. The electrical equipment is durable and is expected to be still in good order when the locomotive as a whole has reached obsolescence. The battery remains the least satisfactory item.

The general mechanical parts of the locomotive follow established steam practice. Work on the engine itself, however, raises problems of amount of permissible wear, etc., and a detailed schedule has been worked out. The main items are:—

(*a*) Crankshaft and main bearings (alignment, journal sizes, bearing metals).
(*b*) Big-end bearings and crankpins (ovality of crankpins, cracks in bolts, bearing metals).
(*c*) Pistons and rings.
(*d*) Cylinder liners (method of measuring and recording wear).
(*e*) Valve gear and camshaft (bushes, push rods, and guides).

The rates of wear have been found to be very moderate, and the engines can be kept in service at least 30 years on an economic basis so far as concerns overhaul costs. This low rate of wear is the chief reason why more use has not been made of various metal-depositing processes.

(A summary of the discussion will be published next week)

* Abstract of a paper presented to the Institution of Locomotive Engineers in London on March 22

Utilising Smokebox Char in Stationary Boilers

A special grate developed by the L.M.S.R. enables waste material from locomotives to be used for raising steam

WHEN the smokebox of a locomotive is cleaned after the day's work, a quantity of unburnt fuel, known as smokebox char, is removed; although modern engines do not produce as much as engines of the older types, there is still a large quantity of this char. It is small in size, generally little more than dust; nevertheless, it contains an appreciable quantity of thermal units and is therefore capable of being used to produce steam. In the past, the practice on the L.M.S.R. has been to send it in considerable quantities to the company's power stations where it is burnt, mixed with coal, under boilers having chain-grate stokers. From the beginning of the present emergency greater care has been exercised in collecting all the available char at the running sheds and consequently larger quantities have become available. From the beginning, it was considered desirable to explore methods by which the char could be burnt at the places where it is collected and thus save the rail transport that is entailed when it is sent to power stations. At many places on the system there are stationary locomotive-type boilers which are used for various purposes, such as for preheating trains, and attention was therefore given to the possibility of burning char in these boilers.

Unfortunately, there are certain difficulties when char is used as a fuel. If it is fed on to an ordinary grate, a large proportion drops through the fire-bars and is lost. Moreover, the char contains a large amount of incombustible matter which forms clinker, and the removal of this clinker at frequent intervals is difficult without impairing the steam production during the process of cleaning the fire.

For this reason the type of grate shown in Fig. 1 has been designed; the firebars are arranged horizontally like a flight of steps, so that the char cannot drop through. To facilitate cleaning the fire, a firebrick wall is provided towards the front end of the firebox and this divides the ashpan into two compartments. The back portion is open to the atmosphere to admit air to the grate through the back damper, but the front portion is completely shut off from the atmosphere by the front damper and is used only as a receptacle for clinker. To clean the fire, the clinker is pushed down the steps by means of a slice and lifted over the front wall into the dump hole, from which it is removed at suitable intervals through the front damper. The slope of the step grate makes for ease in the removal of the clinker.

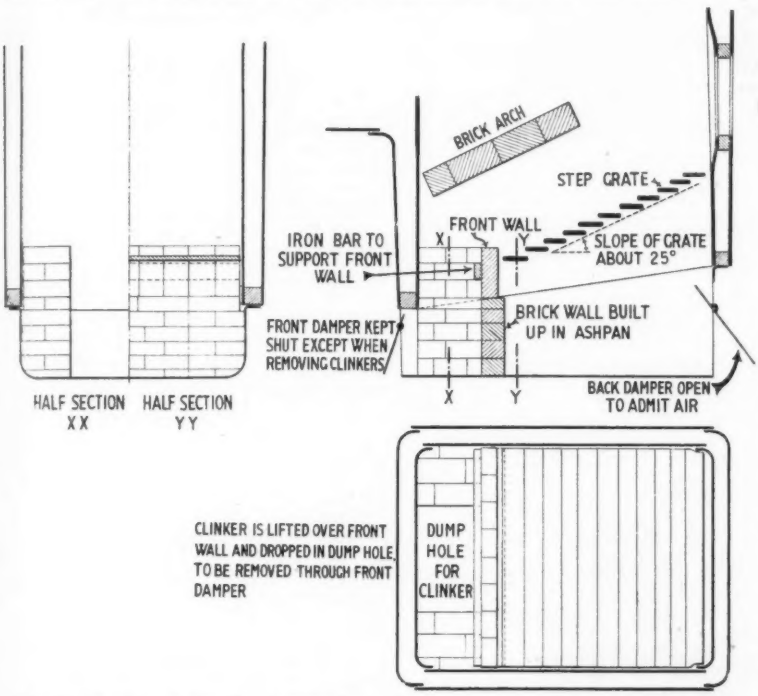

BRICK ARCH
STEP GRATE
FRONT WALL
X
Y
IRON BAR TO SUPPORT FRONT WALL
SLOPE OF GRATE ABOUT 25°
FRONT DAMPER KEPT SHUT EXCEPT WHEN REMOVING CLINKERS
BRICK WALL BUILT UP IN ASHPAN
HALF SECTION XX
HALF SECTION YY
BACK DAMPER OPEN TO ADMIT AIR
CLINKER IS LIFTED OVER FRONT WALL AND DROPPED IN DUMP HOLE TO BE REMOVED THROUGH FRONT DAMPER
DUMP HOLE FOR CLINKER

Fig. 1—Special grate for locomotive-type stationary boiler required to burn char and coal slack

The grate is cleaned one part at a time; for example, first the centre third and then the right-hand and left-hand sides. After cleaning off the clinker, the firebars are practically bare, and if fresh char were put on it would take some time to ignite. It is, therefore, the practice after cleaning a portion of the grate to put in one or two shovelfuls of small coal which ignites much more readily. When this is well alight, firing with char exclusively is resumed. It has been found that each lb. of char will evaporate about 4·79 lb. of water, from and at 212° F.

Relative Steam Production

The total quantity of steam produced in a given time when burning char is considerably less than would be produced by the same boiler when burning coal, firstly on account of the lower calorific value of the char; secondly because the draught has to be limited to a vacuum of about ½ in. of water in the smokebox (a greater draught would lift the char off the grate); and thirdly because the grate area has been reduced by the provision of the front wall and dump hole. For this reason, it will be necessary in most cases to burn a certain amount of coal in addition to the char.

The graph in Fig. 2 shows the effect of varying the proportion of char and coal on the steam production and on the amount of coal saved. Whatever the percentage of coal used, the coal is not mixed with the char but is put on the grate after removing the clinker. By this method, the coal has burnt away before the next cleaning is necessary and this avoids the possibility of good coal being removed with the clinker.

The graph in Fig. 3 shows the amount of steam which can be produced by stationary locomotive-type boilers of different sizes for varying proportions of char and

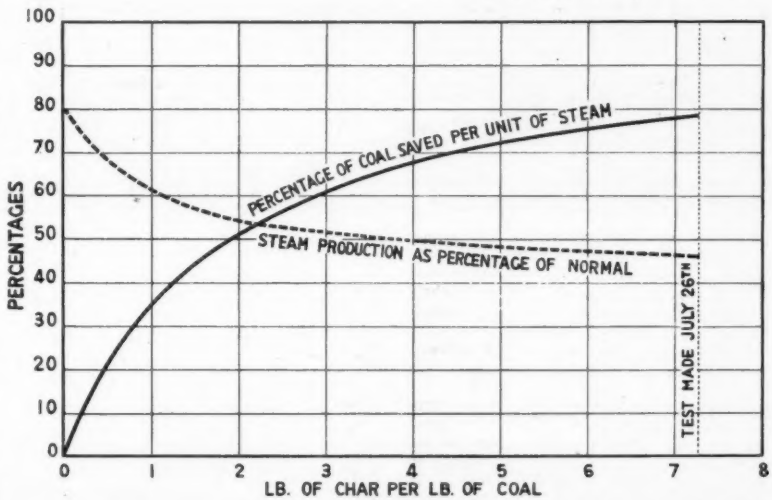


Fig. 2—Steam production and fuel saving shown in relation to the proportion of char burnt

coal with a draught equal to a vacuum of ½ in. of water in the smokebox. It is hoped that the adoption of this type of grate will result in considerable savings being effected in coal and also in the cost of transporting char to distant power stations.

Apart from its original purpose of enabling char to be burnt, this type of grate has been found successful in enabling locomotive-type stationary boilers to be fired with coal slack instead of with lump coal. The difficulties of burning slack are the same, although in a lesser degree, as those when burning char; that is, there is the tendency for the small coal to fall through the normal type of grate; also many types of slack coal produce a considerable amount of clinker.

The step grate and dump hole for the clinker enable these troubles to be overcome, and it has been found in one particular test, using ¾ in. slack coal of low grade, that the steam production was about 95 per cent. of that normally produced when using a moderate quality of lump coal. This application should be of value, as not only is the slack coal cheaper, but at the present time there is a greater shortage of lump coal than there is of slack, so that any such extended use of slack is a definite advantage from the national point of view.

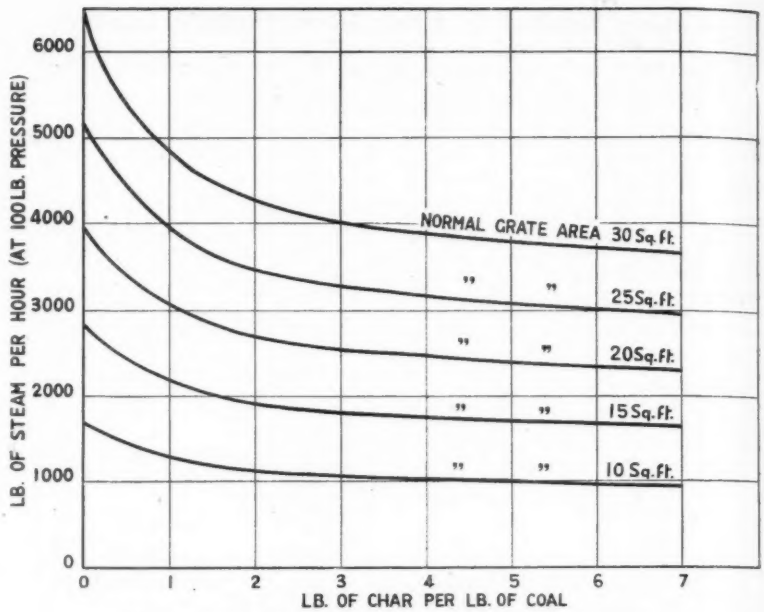


Fig. 3—Steam production from grates of different areas

Mogul Locomotives in Northern Ireland

The latest form of Ulster-built L.M.S.R. engines

Class "W" 2-6-0 engine No. 103 "Thomas Somerset," built at Belfast in 1942

IN readiness for the opening of the Greenisland loop line giving a direct run, without reversal, from Belfast to Antrim, Coleraine, Londonderry, etc., the L.M.S.R. Northern Counties Committee introduced Mogul, or 2-6-0 type, locomotives in July, 1933, to handle the accelerations made possible by the new line.

It may be recalled that the new loop, which was described and illustrated in *The Railway Gazette* of June 16, 1933 (pages 810-812), shortened the Belfast—Antrim main line by about 2½ miles. The spur is on a continuous gradient of about 1 in 75, and thus demanded increased locomotive power so that trains with heavy loads might negotiate it without assistance.

The design of these remarkable engines was based on the standard L.M.S.R. 2-6-4 tanks of the parallel-boiler type. The cylinders, motion, and boiler were the same, but the Irish engines also carried top-feed apparatus, and the coupled wheels were increased to 6 ft. dia. The leading dimensions were as follow: cylinders, 19 in. by 26 in.; boiler pressure 200 lb. per sq. in.; total heating surface 1,347 sq. ft. (including 266 sq. ft. of superheating surface); the total weight in working order was 95½ tons, including the tender, which weighed 33 tons. Piston valves of 9 in. diameter were provided, having a travel, in full gear, of 6⅜ in.

The first four engines came out in July, 1933; two more followed during 1934, another two in 1935, and the last one in 1936. Only three, Nos. 90, 96, and 97, bore names when first built, but titles were afterwards added to the rest of the class as follow:—

No.	Name	No.	Name
90	*Duke of Abercorn*	95	*The Braid*
91	*The Bush*	96	*Silver Jubilee*
92	*The Bann*	97	*Earl of Ulster*
93	*The Foyle*	98	*King Edward VIII*
94	*The Maire*		

These locomotives, which are designated Class "E," were described and illustrated in *The Railway Gazette* of July 21, 1933, page 104.

The original programme was followed by one for six engines, known as Class "W," of which the first came out in 1938, two in 1940, one in 1942, and one in 1943. The numbers are 99 to 104. At present, only the following three bear names:—

No. 99	*King George VI*
No. 100	*Queen Elizabeth*
No. 103	*Thomas Somerset*

No. 103, which we illustrate, is named after the present Chairman of the Northern Counties Committee. The only difference between these locomotives and the first N.C.C. Moguls is that the tenders have a larger coal and water capacity, namely, 7 tons of coal (against 5 tons) and 3,500 gal. of water (against 2,500 gal.). The total weight of the engines in full working order is consequently increased to 110 tons, 6 cwt. It will be noticed that the tenders are similar in appearance to the high-sided tenders used on the L.M.S.R. in Great Britain.

Plastics In Railway Engineering

Some of the many outlets for their use in various branches of the railway industry

By T. Lovatt Williams and D. Warburton Brown

PLASTICS represent a new group of raw materials which if treated on their own merits, and not regarded in the light of substitutes, offer many attractive properties. For many years the main outlet for the plastics industry was in the domestic and novelty trades, but the great strides which have been made in their development, particularly as to their physical properties, has led to their use by the engineering industries. Their adoption has been slow but steady in this sphere. Engineers are conservative by nature, and proceeded cautiously, but the position at the outbreak of hostilities was that plastics were a fully recognised source of basic raw materials for many branches of engineering.

The war has provided a great stimulus to research and development of plastics and the knowledge gained has enabled these materials to be used for applications hitherto considered impossible. For this the aircraft industry is largely responsible, and today many tons of plastics in one form or another are used annually in the construction of aircraft.

Plastics are available in a wide variety of forms, each possessing certain specific properties. They can be obtained in hard, inflexible form, or conversely as elastic materials closely resembling rubber. Glues and adhesives are made from synthetic resin bases as are paints and varnishes.

Taken as a class, however, the plastic materials offer many attractive properties, the chief of which are:—

(*a*) good physical properties;
(*b*) light weight;
(*c*) ease of manipulation;
(*d*) speed and economy in production;
(*e*) pleasant to touch;
(*f*) wide range of colours.

In view of the increasing use of plastics in other engineering fields it is interesting to examine the question of how far these new materials can usefully be used in the many and diverse branches of railway engineering. For convenience the subject can be reviewed under the following headings:—

Civil engineering;
Signals & telegraphs;
Locomotives;
Carriages & wagons;
Hotels & refreshment services.

Civil Engineering

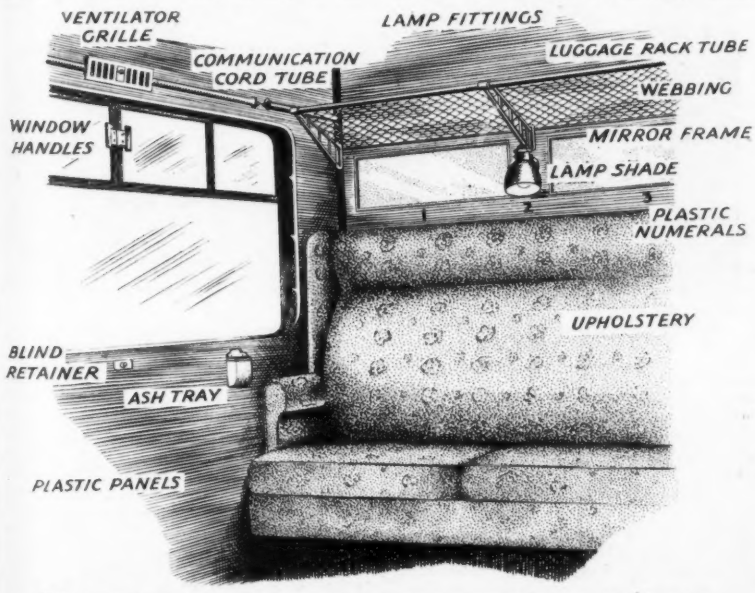
The civil engineering branch of railway work comprises such matters as the construction of all types of buildings, including offices, stations, signal boxes, and canteens. It also covers the laying of permanent way, together with its maintenance, as well as structural work such as bridge building. This aspect of railway engineering offers only a limited outlet for plastics; nevertheless, there are one or two items which are worthy of consideration.

Insofar as buildings are concerned, by far the greatest potential use of plastics lies in interior fitments, as in their present stage of development the strength of these materials is insufficient to allow them to be used for major structural units. Moulded plastics, however, are admirable for such items as electric light fittings, decorative mouldings, and similar articles, and laminated-plastic panels, which can be obtained in a wide range of colours, provide excellent media for wall treatment. Comparatively recently heat-insulating panels have been made by "expanding" plastics—that is, by bubbling gas through liquid resin and curing the resultant foam into a solid form. These panels give excellent results; one 1 in. thick has heat insulating properties comparable with an 18-in. brick wall. Because of this, "expanded" plastic panels are now being used extensively by the building trade. For cold-storage chambers in canteens this type of insulating panel will be invaluable.

Another form in which plastics can be utilised by the civil engineering branch of the railways is in the form of surface protective coatings or paints. Synthetic resin coatings, which can be applied with the normal type of spray-gun equipment, have hard, durable surfaces, and are resistant to the effects of weather, sunlight, acid fumes, and seawater. The choice of colour is almost unlimited, and plastic coatings provide excellent protection against corrosion for steel structural work and metal tanks.

Laminated-plastics panels are produced by impregnating sheets of paper with a resin solution. Several sheets, depending on the desired thickness of the panel, are built into a pack and placed between polished-steel plates on a steam-heated press. Heat and pressure are applied, and the resin in the paper flows and bonds the sheets together. The final sheet has a highly-polished, durable surface, which makes the material admirably suited for serving counters and table tops in canteen construction. In this connection the resistance of the plastic surfaces to heat and organic food acids is a considerable advantage.

An instrument case in plastic material



The interior of a typical coach showing potential uses for plastics

Signals and Telegraphs

The modern signalling systems with their attendant electrical equipment provide a number of instances in which the excellent electrical properties of plastic material can be used to advantage. Apart from these, some of the more robust outdoor equipment may also be considered.

On the electrical side, the control panels in signal boxes, and the switches, relays, contactors, and indicators nearly all use plastics to a greater or less extent. A further possible application lies in the instrument cases which are in a great number of cases built up from wood and brass. In the large quantities in which such instruments are required, the cost of a completely moulded case in a shock-resisting plastic material would undoubtedly be less, despite the initial capital outlay on the necessary moulds. Other uses to which plastics are put in connection with signalling include track insulators of various types.

Pulleys for use in connection with signal cables have been tried experiment-

ally moulded in fabric-base laminated-plastics which have excellent mechanical properties. These experimental pulleys were tried out in tunnels where the corrosive action of the smoke fumes and moisture had caused considerable trouble when metal pulleys were used. After a period of some 18 months, the pulleys

A plastic pulley for signal cables

were examined and found to be in very good condition, and it is understood that these have now been standardised on several sections of track. A number of pulleys are illustrated produced from laminated plastic material. The resistance to the corrosive fumes makes plastics particularly suitable for the type of work.

Locomotives

The arduous conditions under which locomotive components are called on to operate make the application of plastics very limited in this field. There are however a few instances where they can be used, notably for certain types of packing glands and for control handles and wheels and it is probable that these latter items offer the greater scope. The poor heat conductivity of plastics is a definite asset in such cases. Apart from the items already mentioned, however, which represent a very small annual tonnage of raw materials, there is very little outlet in this sphere.

Carriages and Wagons

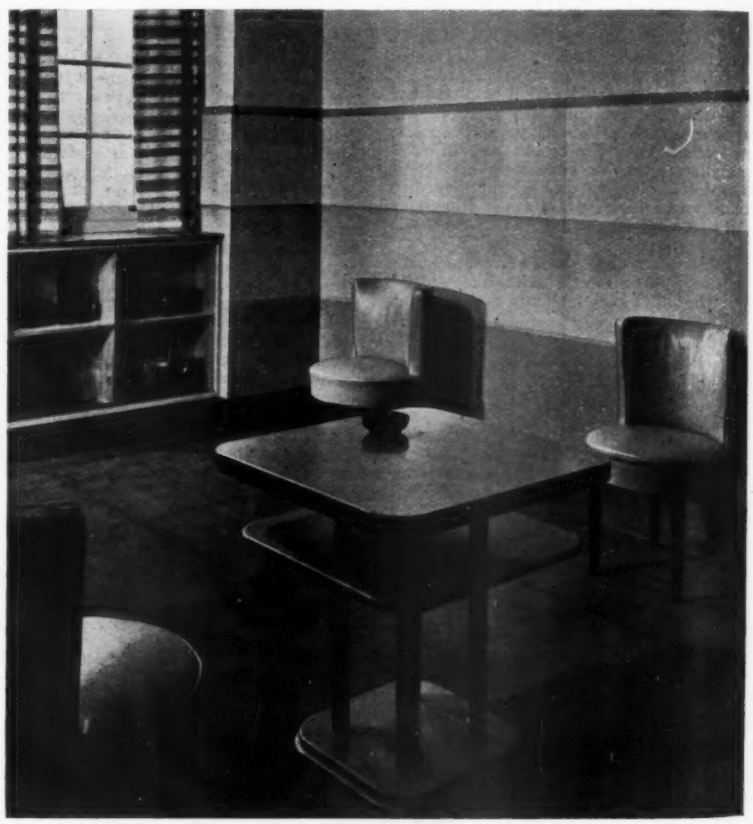
By far the greatest scope for the application of plastics to railway engineering is in the construction of carriages and wagons. The wide range of colours in which these materials are obtainable, together with their smooth, durable finish makes them particularly suitable for producing interior treatments which are both pleasing and practical. In a very minor way plastics are already used for carriage furnishing; ashtrays moulded in Bakelite material have been in use for a number of years.

The possibilities offered by the synthetic-resin materials in this sphere are not confined to decorative treatments; certain mechanical components also are suitable for consideration, but these represent a minority and will be dealt with in more detail later.

Turning to the interior treatment of coaches, the use of plastics will enable light, hygienic finishes to be applied. The drawing at the head of this article represents the interior of a modern coach and indicates some of the main items which can be treated in plastics. These items together with others which warrant attention are given in the following list:—

Ventilator grilles
Window handles
Roof ventilators
Blind retainers
Ashtrays
Panelling
Upholstery
Interior door handles
Mirror frames
Pelmets
Communication cord tubes and brackets
Coat hooks
Luggage rack tube and supports
Electric light fittings
Window handrails
Seat ends
Lavatory seats
Towel racks
Lavatory door locks
Soap racks
Soiled towel containers
Toilet paper containers
Air conditioning ducts

Probably the best way to appreciate the significance of the above list is to consider the applications in greater detail. Ventilator grilles of all types can be made from a variety of plastics in colours to tone with the general colour scheme.



An example of plastic panelling for interior wall decoration

Materials of the urea type (Beetle) and cellulose acetate type (Becoid) are suitable for this type of work. Roof ventilators of the rotary shutter type provide an excellent subject for treatment in plastics. A suitably designed ventilator, built up from two or three components moulded in a shock resisting grade of phenol formaldehyde or phenol furfural material, would be not only neat in appearance and light in weight, but would also be a means of conserving many tons of metal for other war industries. One of the shock-resisting grades of Bakelite would be well suited to this type of application, or if light colours are required one of the plastics from the cellulose group could be used.

Numerous small interior fitments such as blind retainers, coat hooks, and ashtrays could be economically produced as mouldings, and advantage could be taken not only of the colour and warm texture of plastics, but also of the mouldability of these materials. The characteristics of plastics enables articles to be produced in shapes which would be impossible in metal, or at any rate would not be economical. Unfortunately, this aspect of plastics design is not always turned to advantage.

As an example, the familiar moulded fittings in many railway coaches may be quoted. These provide an excellent illustration of how the full possibilities of colour and form of plastics have not been exploited. They are a typical case of plastics being considered as substitute. As the interior of the coaches are panelled in wood the ashtrays were moulded in a plastic having a colour as near to that of wood as was possible. The result is far from satisfactory, and if the colour possibilities of the material had been utilised to the full, and a suitable contrast shown, the effect would have been far better. The same applies to the form of the ashtray. If this had been designed to bring out to the full the smooth surfaces which are made possible by using plastics, the result could have been more pleasing.

Other coach fittings include heat-regu-

lator controls, mirror frames, and electric light fittings. These latter items are largely moulded at the present time and cover switches, lamp sockets, and lamp shades. Here, too, there has been a lack of imagination in the choice of colour and form.

Perhaps the most outstanding example of the possibility of utilising plastics in the construction of railway carriages is provided by plastic panelling. The smooth, durable surface of these materials renders the use of paints and varnishes unnecessary. This same quality makes the panelling hygienic and easy to clean. By its use lighter and more restful interior treatments can be achieved, as will be seen by reference to the illustration given herewith which shows the use of laminated plastic panels for office decoration. The clean, smooth effect can be seen readily. These materials are also admirably suitable for dining-car table tops, pelmets, and seat ends.

Another aspect of plastics applied to coach furnishing is provided by the use of the synthetic resin fibres, such as Nylon,

Interior and exterior components for a plastic door handle

which can be woven into fabrics possessing outstanding wearing and waterproof qualities. Other fibres based on plastics include vinyl resins of various types as well as cellulose and casein materials. Materials woven from these fibres are extremely hard-wearing and are resistant to water, acids, and insects. Applied to railway coaches these materials are suitable for upholstery where their hard-wearing properties show to advantage, and for blinds. Basket weave based on extruded strips of vinyl plastics had been used in America for motor-coach seats, and would be suitable for use in diesel-engine coaches used for local traffic.

Plastics of the vinyl group are also extruded over cord, and this material would be very suitable for weaving the luggage rack nets. It can be obtained in practically any shade or colour, and is extremely strong as well as being rot-proof. Before passing from the vinyl plastics mention must be made of electric cables sheathed in extruded tubes of polyvinyl chloride. These cables are extremely resistant to abrasion and moisture, so that fire hazard due to insulation breakdown can be practically eliminated.

Covering metal articles with plastics offers many attractive possibilities where the strength of plastics is insufficient but where it is desirable to take advantage of their colour effects. Typical examples are the use of metal tube covered with cellulose acetate which can be used for a variety of purposes, such as for corridor-window handrails and for the front-edge tube on luggage racks. The same principle can be applied to the production of door handles, and indeed this practice is common in the motor car industry.

Lavatory fittings of all types can be produced as mouldings in a number of different plastics. Articles such as lavatory seats, soap dishes, towel racks, and toilet paper containers are representative items where plastics could be used advantageously. The adoption of plastics for panelling and fitments would result in far more hygienic lavatories as well as improving appearances.

In the future, air conditioning of passenger coaches is likely to assume some importance and, if it is adopted as standard equipment, plastics will undoubtedly play an important part. Air fans and ducts, as well as grilles, can all be made from the synthetic-resin materials. Experience in this field has been gained in the heating ducts in bombing aircraft, which are made entirely from cellulose acetate.

Insofar as wagon construction is concerned plastics do not offer any major advantages. There are, however, one or two interesting points for consideration. The weather resistance of the plastics paints and coatings has been referred to already, and it is in this form that plastics will find their major outlet in wagon construction. For refrigeration vans expanded plastics with their superior heat-insulating properties will probably supersede the asbestos sheets which are now used for this purpose.

Mention has already been made to the use of plastics for certain mechanical components, and it is now proposed to examine this aspect of the question in a little more detail. Sundry small pulleys for remote controls and similar purposes can readily be produced as mouldings either in shock-resisting or laminated grades of plastics. Larger pulleys suitable for generator drives also may be made in this manner.

A more revolutionary development is the use of plastics for rolling-stock bearings. In Germany before the war numerous tests were conducted in this sphere, but unfortunately no conclusive results have been published in this country. Certain recommendations concerning the design of plastic bearings for this class of work, based on the tests are available which indicate that the results must have been satisfactory. To illustrate the efficiency of bearings made from fabric-base laminated plastics brief details will be given of their performance when fitted to steel rolling mills, where shock loads of considerable magnitude have to be accommodated. This type of bearing is now largely replacing bronze and lignum vitæ for steel mill work not only on account of their longer useful life, but also because the power consumption of the mill is reduced because of the lower coefficient of friction.

Many examples could be quoted to illustrate these points, but one chosen at random is found in a report issued by an American steel mill. Here it was found that the useful life of plastic bearings was from 10/15 times as great as bronze and that a reduction in power consumption of approximately 25 per cent. was realised. The initial cost of the plastic bearings was greater but the overall saving was very considerable. Plastic bearings can be lubricated with water, grease, or a mixture of both. Furthermore, if through some mischance the lubrication system breaks down the plastic bearing can run " dry " for a period without damaging the shaft, as the resilient nature of the plastic acts as a safety device.

Hotel & Refreshment Services

The hotel & refreshment services include the equipment of hotels, restaurants and station refreshment rooms. Here again there is a wide scope for the use of plastics—particularly those of the laminated type for interior decoration, table tops, and serving counters. Of the moulded types the urea plastics are eminently suitable for all types of table-ware such as cups, saucers, and plates, and apart from being virtually unbreakable they can be made in a wide variety of bright colours. Knife handles are already made from plastics. Another possible application to this branch of the railways is the use of moulded plywood bonded by plastic adhesives and finished with hard durable plastic enamels. Robust tables and chairs can be made from this type of material which also possess the advantage of being extremely light in weight. Folding canteen furniture can be made by this method and is both attractive and cheap.

Transport food covers can be produced from cellulose acetate or other types of clear plastic and storage tanks for liquid foods—for example, milk—lined with chemically-inert plastics would be hygienic and easy to clean.

Other items which can be considered in plastics include electric-light fittings of all types, platform serving trolleys with their shelves, covers, and wheels made from the synthetic resin materials.

Conclusions

The brief notes which have been given in the foregoing sections of this article will give some idea of the very wide scope which exists for plastics in the various branches of railway engineering, and it is hoped that those responsible for the various branches will have been given sufficient information to pursue the question further.

It has not been possible to do more than generalise in the space available. Each aspect is worthy of detailed attention, but it will be found that the plastic firms will be only too glad to offer specific advice as to any problems put up to them.

The question of cost has not been too heavily stressed. This is because it is so closely associated with the peculiar circumstances of each individual case. Nevertheless, in the quantities which are likely to be involved plastics will in the majority of cases be able to compete on equal terms with other raw materials—in many cases economies, direct or indirect will be realised by their adoption. In certain cases moulds will have to be made. These are expensive items and involve capital outlay. When necessary this outlay must be carefully balanced against the overall savings. It will usually be found that tool expenditure is justifiable. In other cases moulds are not necessary, and when this is the case the savings may be considerable.

From the foregoing brief analysis of the possibilities of plastics progressive railway engineers and designers will observe with interest the vast possibilities which lie in this field, and without attaching to plastics any attributes which they cannot possess practically, one cannot fail to foresee a new era opening for the use of these most interesting materials.

Electrification in Switzerland

Scarcity of fuel has been largely responsible for electrification schemes recently completed or sanctioned

ON all recently-electrified lines, shortage of materials has necessitated the use of wooden poles for the overhead construction (except in stations), and of copper-clad steel contact-wires on the main tracks, with aluminium wires elsewhere. In most cases, the lines concerned have been relaid, provided with colour-light signals and generally improved in respect of such equipment as service telephones. Lines recently opened, or about to be converted, for electric traction include:—

(1) *Zürich—Wettingen*, 20·7 km. (about 13 miles), opened on February 14, 1942. This line was the scene of the Oerlikon trials in 1904-9, referred to in the issue of *The Railway Gazette* for November 13, 1942. It serves as an avoiding line for traffic from the Olten and Basle routes in the Winterthur direction, which does not have to enter Zürich. It formed part of the old Nationalbahn, and its early history was traced in our issue of December 16, 1938.

(2) (*Neuchâtel—*) *Auvernier—Verrières*, 34·4 km. (about 21 miles), opened on November 22, 1942. This is part of a through route between Paris, Pontarlier, Berne and the Lötschberg line. Traffic is light, but an almost continuous gradient of 1 in 50 and eleven tunnels made electrification desirable.

(3) *Interlaken—Meiringen*, 28·6 km. (about 18 miles), opened on December 24, 1942. This was the final section to be converted of the metre-gauge Brünig line, the Lucerne—Meiringen portion of which was electrified in 1941, and was described in our issue of March 27, 1942.

(4) *Winterthur—Neuhausen* (*—Schaffhausen*), 27·7 km. (about 17 miles), opened on April 10, 1943. Because the main line from Zürich *via* Eglisau passes through Germany for 10 km. this is the only route from the west and south to Schaffhausen which is entirely on Swiss territory, and as a result its importance has increased during the war.

(5) *Wil—Wattwil*, 20 km. (about 13 miles). This was a steam-operated line in an entirely electrified area, and connects the Zürich—St. Gall main line with the Bodensee-Toggenburg Railway. The line carries a fairly heavy seasonal traffic for winter sports, which take place in the Upper Toggenburg valley. In connection with the electrification, two girder bridges have been replaced by concrete viaducts, and similar work on a third is in progress.

(6) *Bière—Apples—Morges*, 19·1 km. (about 12 miles), opened on July 1, 1943. The proposals concerned with the conversion of this metre-gauge line were described in our March 27, 1942, issue. The standard overhead single-phase system at 15,000 V is used, with current supplied by the Federal Railways at Morges.

(7) *Val de Travers Régional*, 13·6 km. (about 8 miles). This standard-gauge line, which is in process of conversion, is privately owned, and extends from Travers to Fleurier and St. Sulpice, and has a branch from Fleurier to Buttes. These lines have been operated for some years by diesel traction, as referred to in the August 4, 1939, issue of our *Diesel Railway Traction Supplement*. The standard 15,000 V single-phase system will be used, and two electric motor coaches have been ordered. Local authorities and undertakings are contributing extensively to the cost of conversion.

(8) (*Lausanne—*) *Palézieux — Lyss* (*Broye line*), 80 km. (about 50 miles). Although not included in any of the earlier electrification projects, this line is to be converted as a wartime measure to save coal. It carries a light traffic, but would serve as an alternative route to the main lines from Lausanne to Berne and Bienne (Biel). However, instead of the entire Broye-valley line being converted immediately, the Payerne—Lyss section, and the Yverdon—Payerne section of the Yverdon—Fribourg line are to be completed first. This will provide a more-easily graded east to west route than that *via* Palézieux, which includes the heavily-graded Lausanne—Palézieux section of the Berne line.

(9) (*Lyss—*) *Busswil—Solothurn—Herzogenbuchsee*, 35 km. (about 22 miles). This is a continuation of the Broye-valley line (although it involves a reversal at Lyss), and is a useful alternative line to the main routes *via* Berne and Bienne (Biel).

(10) Other lines to be electrified include the 13·3 km. (8-mile) line between *Turgi and Koblenz*; the 22·5-km. (14-mile) *Effretikon — Wetzikon — Hinwil* branch, which is in an entirely electrified area; and the 6·6-km. (4-mile) *Wald—Rüti* section of the Rapperswil—Winterthur line, with a continuous grade rising at a maximum of 1 in 40.

Because of the prohibitive cost and scarcity of fuel, the Swiss Federal Railways administration has decided to electrify a number of secondary lines. The lines concerned carry light traffics and, with one exception, they have fairly easy gradients. Formerly it had been considered advisable to retain these lines for steam operation to utilise those steam locomotives which must be maintained in reserve in case of a breakdown of the electrical supply.

Preliminary work is to be undertaken for the conversion of the 66·3-km. (41-mile) *Schaffhausen — Romanshorn* line; and of the 68·5-km. (43-mile) *Stein—Säckingen—Eglisau* and 16·3-km. (10-mile) *Bulach—Winterthur* sections of the Basle—Winterthur route, the remainder of which is electrified.

Finally, the under-mentioned lines are included in the programme of works to be undertaken at indefinite dates as part of a general scheme for Government-subsidised public works to relieve unemployment:—

(1) *Palézieux—Payerne—Fribourg*, 60 km. (about 37 miles). This scheme includes the remaining sections of the Broye and Yverdon—Fribourg lines, mentioned above.

(2) *Zofingen—Suhr—Lenzburg—Wettingen* and *Suhr—Aarau*, 45·7 km. (about 28 miles). This electrification would provide a valuable relief line, as it runs parallel to the main Olten—Zürich route.

(3) *Wald—Bauma—Winterthur*, 39·6 km. (about 25 miles). This line rises to Gibswyl at a maximum gradient of 1 in 33, and then falls at a gradient of 1 in 100 to 1 in 50 to Winterthur.

(4) *Winterthur — Etzwilen — Singen*, 41·5 km. (about 26 miles); the final 8 km. of this line are in German territory.

Southern Railway Electrification

Further developments under close examination

AT the recent annual meeting of the Southern Railway Company, Colonel E. Gore-Browne, Chairman, dealt at some length with electrification, and said that on the Southern Railway in particular further electrification developments were under close examination. Already 720 route miles of the system of that company were equipped for electric traction, and over 60 per cent. of the total passenger train miles were operated electrically.

Colonel Gore-Browne went on to point out that conversion of electric traction was an economic question; a large outlay in sub-stations, cables, conductors, locomotives, or train equipment was involved. Electrification allowed extra trains to be run in the off-peak hours at a much less cost than with steam traction, and in the populated areas near large cities and towns this resulted in increased traffic, but as the distance from London increased, prospects of additional revenue from this source lessened and economy in operation would have to be the determining factor. Until quite recently, electric traction had been confined almost wholly to passenger traffic, conveyed in set trains with the electrical equipment mounted on the coaches.

He was pleased to be able to tell stockholders that the first of the Southern new electric locomotives had been put into regular freight service in June last, and to the end of the year it had run 40,000 miles. This machine had been designed to operate over the third-rail system, and it had proved very efficient. It was not only helping with the company's war load in replacing two steam locomotives, but it offered the hope of further extensions of electrification under conditions which would allow the maximum use of fixed equipment by handling both passenger and freight services.

SWEDISH NEW ELECTRIC LOCOMOTIVES.—Reuters reports that four Swedish engineering firms, A.S.E.A., Nydqvist & Holm (Trollhättan), the Motala Workshops, and the Vagnoch Makinsfabrikerna (Falun), are engaged jointly on an order from the Swedish State Railways for 17 large electric locomotives of a new ("M") type, the first of which has been delivered. The engine is of 3,600 h.p. It is not stated whether these locomotives are those of the type designed for operating in Norrland, to which brief reference was made in our September 3, 1943, issue.

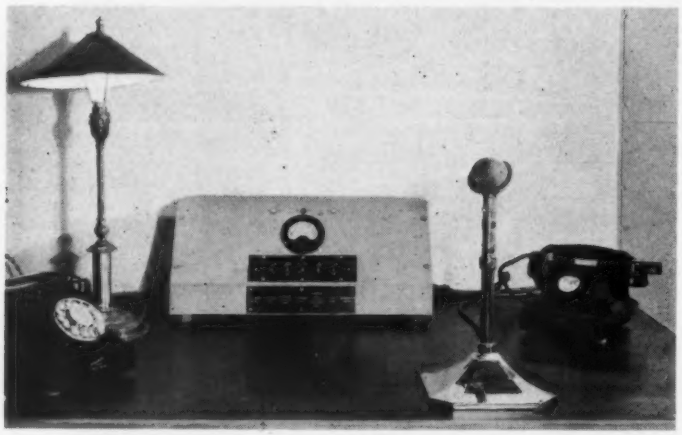
XUM

[" British Railways in Peace and War"

A typical layout of tracks on the London Passenger Transport Board, south of Wembley Park. On the left is a train bound for Baker Street; next is a Bakerloo train going to Elephant & Castle; then a train travelling north to Stanmore; the train on the right is for Uxbridge

Improved Loudspeaker Installation at Liverpool Street Station, L.N.E.R.

Automatic adjustment of the volume of loudspeakers to noise in their vicinity is the principal feature



Control panel, microphone, and announcer's telephones

A LOUDSPEAKER installation, specially designed by Central Rediffusion Services Limited in co-operation with the Chief Engineer's Department of the L.N.E.R. to overcome acoustic and other problems arising out of the heavy volume of traffic handled at that terminal, recently replaced the public-address system installed at Liverpool Street Station in 1937. The problems have been met by directing beams of sound down each individual platform so that speech is not audible on adjacent platforms; by giving a wide angle of diffusion of speech in the circulating areas; and by varying the acoustic power fed to each group of loudspeakers so as to meet changing noise-levels—this is effected by the provision of automatic volume-control circuits of novel design.

The installation contains no less than 123 loudspeakers, of waterproof construction, and resistant to the effects of humidity and to sulphur and soot corrosion. They are divided into seven groups covering the platforms, cab rank, circulating area and refreshment rooms. The platforms are serviced mainly by 51 horn-type loudspeakers suspended on carrier wires at a height of about 15 ft. They broadcast in particular directions and confine speech as far as possible in each case to the platform for which it is intended. The circulating areas are covered by 59 metal cabinet type loudspeakers mounted at frequent intervals at a height of from 8 to 10 ft. In the refreshment rooms and enquiry office there are 13 wooden cabinet loudspeakers.

One multi-cell crystal microphone is used for feeding two pre-amplifiers, one working and one spare. Each pre-amplifier has three stages of amplification and includes a valve voltmeter which gives visual indication to the announcer, to assure maintenance of constant level of speech. The indication of the valve voltmeter is independent of the main gain setting of the pre-amplifier, and the individual gain settings for various loudspeaker groups. Two 85-watt power amplifiers run in parallel, and are arranged for automatic disconnection of input and output of a faulty or unused amplifier.

The microphone is made alive by the simple depression of any or all of the seven keys associated with the seven loudspeaker groups. Simultaneously, the high tension is switched on the power amplifiers. Arrangements are made to assure that the power amplifiers are always working in constant load.

The volume of certain loudspeaker groups is adjusted automatically in relation to the noise level in the station. For this purpose one of two noise-detector microphones is selected by means of the group keys mentioned above. The input from the noise detector microphone is applied to a special microphone amplifier, by means of which a varying d.c. bias is obtained proportionate to the noise level, which is applied to one of the amplifier valves of the pre-amplifier in use. The volume of loudspeaker groups not subject to automatic volume adjustment is controlled by applying a fixed bias voltage to the pre-amplifier. Facilities are also available to disconnect the automatic volume control system when not required.

Two telephones are installed in the announcer's room. One is connected to the L.N.E.R. automatic exchange, and the other connects the announcer to eight telephone instruments at various strategic positions on the station. Telephone calls intended for the announcer are signalled by means of indicator lights.

The wiring of loudspeakers and telephone systems has been mainly carried out in overhead wire, supported by porcelain insulators. Wherever open wiring could not be conveniently used, 250-volt grade rubber insulated lead-covered bitumised cable has been used.

WRAPPINGS FOR FORCES' BOOKS.—One pound of paper is needed to wrap each of the 10,000 parcels of books sent monthly to the Forces by the Services Central Book Depot. This is one of the purposes for which paper for salvage is urgently needed.

Typical view of circulating area loudspeakers

View of platform loudspeakers

RAILWAY NEWS SECTION

PERSONAL

Mr. R. J. M. Inglis, Divisional General Manager, Scottish Area, L.N.E.R., who has been visiting India in association with Colonel J. A. Appleton, U.S.A. Army, to advise the Indian Railway Administration informally, has returned to Great Britain on completion of his task.

Mr. Arthur John Farrant Bunning, Deputy General Manager, Nigerian Railway, who has been appointed General Manager, was born in September, 1895. He was educated at Newport (Monmouthshire) High School and Technical College, and entered the Traffic Department of the Great Western Railway early in 1912. He joined the Army soon after the outbreak of war in 1914, and was commissioned in the South Wales Borderers in 1915; after being wounded on the Somme a year later he returned to France as a Railway Traffic Officer in 1917. In December, 1918, he was posted to the General Headquarters Railway Traffic Office, Cologne, and a year later to Danzig as R.T.O. in Charge. After a year spent there and on the Inter-Allied Baltic Railway Commission in Poland, he returned to the United Kingdom at the end of 1920 and was demobilised. Early in 1921 Mr. Bunning joined the Eastern Railway Construction of the Nigerian Railway and in 1927 came over to Open Lines as Assistant Traffic Officer. He was promoted District Traffic Superintendent in 1936. Three years later he transferred to the Gold Coast Government Railway as Traffic Manager. In May, 1942, Mr. Bunning returned to the Nigerian Railway with the appointment of Chief Traffic Superintendent; he never took up that post, however, as on arrival he was promoted Deputy General Manager. He acted as General Manager in April and May, 1943, and again from July, 1943, until his appointment as General Manager in January, 1944.

Mr. A. J. F. Bunning
Appointed General Manager, Nigerian Railway

We regret to record the death on March 22, at the age of 80, of Mr. F. W. Dingley, formerly Divisional Superintendent of Motive Power, Western Division, L.M.S.R., who retired in 1927.

Mr. S. T. Ward, who, as recorded in our February 11 issue, has retired from the position of Indoor Assistant to the Traffic Manager, Great Northern Railway (Ireland), after 51 years' service, began his railway career in the Goods Manager's Office, Belfast, in 1892. After gaining practical experience in the various departments and acquiring an intimate knowledge of the various phases of railway management he was appointed in 1911 Chief Rates Clerk, and in 1921 Chief Clerk, to the Goods Manager. Subsequently the functions of Superintendent of the Line, who controlled passenger-train traffic, were merged with those of the Goods Manager, and Mr. Ward was appointed in 1926 to be Chief Clerk to the Traffic Manager, to whom he became Indoor Assistant in 1932. Mr. Ward was well-known and esteemed in railway and shipping circles both in Ireland and Great Britain. He represented the G.N.R.(I.) at various conferences in the Railway Clearing Houses in London and Dublin, and also at the Irish and English Traffic Conferences. During the passage of the Railways Act in 1921 he attended in London as representative of the Irish railways, and also acted as their representative on the Classification Committee. He is an able debater, and in conference his opinion was respected.

Mr. S. T. Ward
Indoor Assistant to the Traffic Manager, Great Northern Railway (Ireland), 1932-44

We regret to record the death on March 20 of Mr. A. M. Evans, who retired from the service of the South African Railways & Harbours in May, 1943. To the time of his death, when he was in charge of the technical library at railway headquarters, Johannesburg, he was for many years correspondent in South Africa of *The Railway Gazette*.

We regret to record the death of Mr. Sydney Humbert, Manager of "Bradshaw's Guide." Mr. Humbert joined the Manchester Office of Bradshaw's in 1901, and in 1903 he was moved to the London Office as Assistant to Mr. Ingleson, the Manager. During the war of 1914-18 he held a commission in the Royal Engineers (Signals), and served under the command of Field-Marshal Lord Birdwood. He was awarded the Military Cross after the second battle of the Somme. On resuming civil life, he returned to Bradshaw's, and in 1925 was appointed Manager, which post he retained until February, 1944, when he retired because of ill-health. His work was closely identified with the railways, and he was also largely responsible for the inception of "Bradshaw's International Air Guide," which was first published in November, 1934.

The late Mr. Sydney Humbert
Manager of "Bradshaw's Guide," 1925-44

Mr. Humbert was the stepson of Sir Robert Turnbull, one-time General Manager of the London & North Western Railway, and he was also a nephew of Lady Calthrop, the wife of Sir Guy Calthrop, formerly General Manager of the London & North Western Railway. He was also a nephew of Lady Dent, the wife of Sir Francis Dent, formerly General Manager of the South Eastern & Chatham Railway, and subsequently a Director of the London Chatham & Dover Railway Company, now a Director of the Southern Railway Company. Mr. Humbert's sister married Colonel Cortez Leigh, who was for many years Chief Electrical Engineer of the London & North Western Railway, and subsequently of the L.M.S.R., and who is now Chief Army Welfare Officer of the London District. One of Mr. Humbert's sons is now serving as Brigade Major on the staff. Mr. Humbert's wife, Nina Humbert, is the daughter of William Bishop, who for many years was Chief Solicitor of the London & South Western and Southern Railways.

Mr. W. M. Codrington, M.C., and Captain Hugh Vivian have been elected Directors of the Great Western Railway Company. Mr. Codrington is Chairman of the Great Western of Brazil Railway Co. Ltd., Central Africa Railway Co. Ltd., and Nyasaland Railways Limited, and is also on the boards of other companies,

including the Midland Railway Co. of Western Australia Ltd. Captain Vivian is Chairman of Beyer, Peacock & Co. Ltd., and a Director of Metropolitan-Vickers Electrical Co. Ltd., and other companies.

We regret to record the death on March 21, at the age of 79, of the Hon. Lord Blackburn, a Judge of the Court of Session from 1918 to 1935, who was *ex officio* Commissioner for Scotland of the Railway & Canal Commission from 1922 to 1935.

C.E.R.S. writes:—

The death of Joseph B. Eastman, Director of the Office of Defense Transportation and Interstate Commerce Commission, leaves a gap which cannot be filled and completely refutes the saying that no one man is irreplaceable. If there was any one irreplaceable, it was Eastman at this crucial time, and he will be mourned, not only in Federal Government circles in Washington, but throughout the railways, where he was beloved by the executive officers and the employees, as well as by the representatives of the traders.

He was connected with transport in its widest sense, covering rail, road and water, and there were few aspects of this wide interest he had not made himself master of, though, primarily, his career was legal, as he was long a junior collaborator of Mr. Justice Brandeis, of the Supreme Court.

"Brother Joe," as he was often termed by his fellow Commissioners, had served on the Commission since 1919. He was above all human and remained boyish in spite of all his responsibilities and cares. A recognised "liberal" in outlook, his entry into the regulatory field originated through his work in the Eastern States for the employees of transport companies.

He allowed himself a brief holiday each year, usually in Maine or Canada, canoeing and camping with the local guides, and he "disappeared" for this two weeks or more. Often pressed to visit Great Britain, of which he was a stalwart friend and a great admirer, he could not give up that urge for the lone north and its woods and lakes—and its fish.

To spend an evening in his company was an education in itself. Never mincing words, he expressed strong views, but they were judicially chosen and, if he could have left transportation, he would have made a great chief justice.

Living for his work, he gave his all to it, and the United States, in his death, has lost a great American; the civilised world has lost one of its foremost transport experts.

G.W.R. Appointments

The Great Western Railway announces the following appointments:—

Mr. T. H. Hollingsworth, District Goods Manager, Worcester, to be District Goods Manager, Bristol (from May 11).

Mr. C. H. Adey, Goods Agent, Bristol, to be District Goods Manager, Worcester (from May 11).

Mr. D. H. Hawkeswood, Assistant District Goods Manager, Bristol, to be Goods Agent, Bristol (from May 11).

Mr. H. W. Howard, Representative, District Goods Manager's Office, London, to be Assistant District Goods Manager, Bristol (from May 11).

Mr. R. H. L. Bate, Assistant Dock Manager, Plymouth Docks, to be Acting Dock Manager, Plymouth Docks (from March 27).

Mr. R. H. Edwards, Assistant Divisional Engineer, Cardiff, to be Assistant Divisional Engineer, Newport (from February 28).

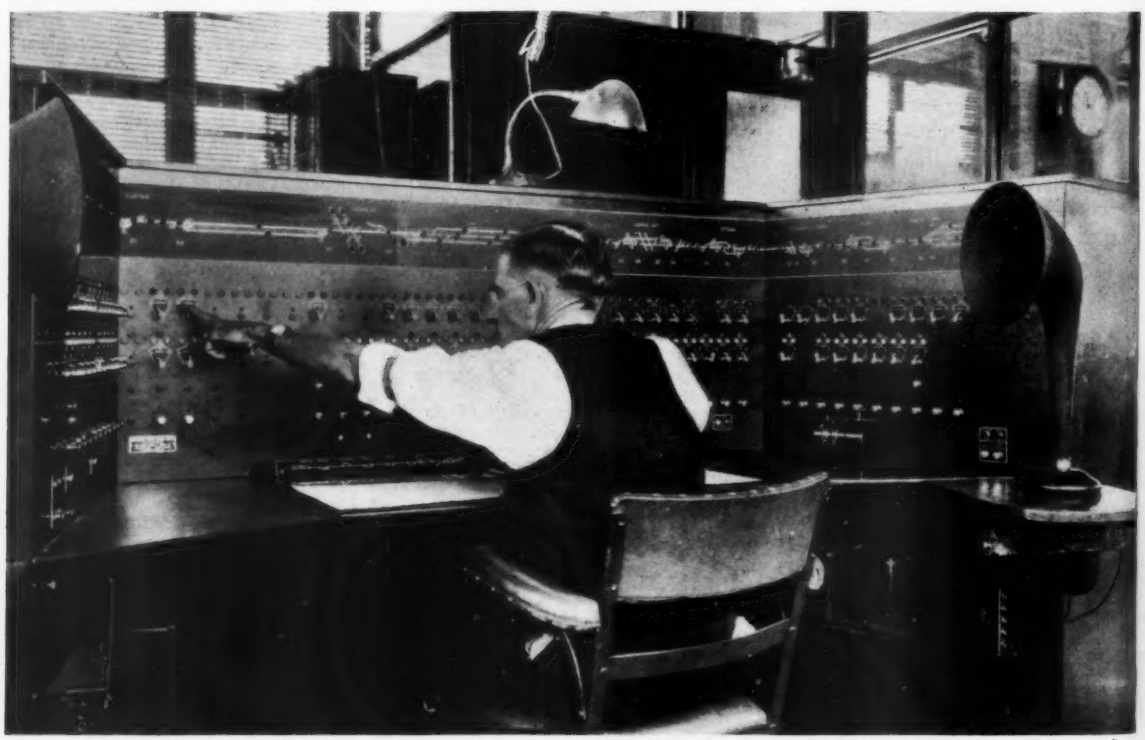
Mr. R. H. Cunningham, Resident Engineer, Chief Engineer's Office, Paddington, to be Assistant Divisional Engineer, Cardiff (from February 28).

Mr. A. C. Macdiarmid, on his appointment as President of the British Iron & Steel Federation (recorded in our last week's issue), has resigned his seat on the board of the Wellman Smith Owen Engineering Corporation Limited. Mr. Macdiarmid is Chairman of Stewarts and Lloyds Limited.

Mr. P. S. A. Berridge, Executive Engineer, Bridges, North Western Railway (India), has been transferred from associate membership to membership of the Institution of Civil Engineers.

Road & Rail Central Conference: Rail Panel

In view of the important questions of policy which are likely to arise in their negotiations with the road hauliers, the railway companies have strengthened the Rail Panel of the Road & Rail Central Conference. The panel has been reconstituted to include chief commercial officers, and its composition is as follows: Messrs. A. E. Sewell, Chairman; F. W. Lampitt (Chief Goods Manager, G.W.R.); F. A. Pope (Chief Commercial Manager, L.M.S.R.); P. Gibb (Goods Manager, North-Eastern Area, L.N.E.R.); A. E. Hammett (Commercial Superintendent, Southern Railway); G. Marshall (Chairman, Goods Managers' Conference); and J. E. T. Stanbra (Secretary, Railway Clearing House).



A centralised traffic control operator at the board of an installation by the Union Switch & Signal Company at Deshler, Ohio, on the Baltimore & Ohio Railroad

TRANSPORT SERVICES AND THE WAR—235

The New Protected Areas

For operational reasons, the Secretary of State for War has made eight Orders, under Regulation 13 of the Defence (General) Regulations, 1939, declaring certain coastal regions to be Protected Areas, as we recorded briefly last week (page 318). This Order comes into force tomorrow, April 1. The new Protected Areas consist of a coastal belt some 10 miles in depth, extending from the Wash, round the east and south coasts, to Lands End, and certain smaller areas on the Firth of Forth. The precise description of the eight areas is given below. The general effect of each of the Orders is to prohibit persons who were not, on April 1, 1944, resident in the Protected Area declared by the Order, from entering or being in that area after that date. Certain classes of persons, such as members of the Forces on duty, Members of Parliament, and certain Government servants on duty, are altogether exempt from the operation of the Orders. Other classes of persons are given general permission by the Orders to enter or be in the areas, as follow :—

(*a*) Persons engaged or employed on necessary business which cannot be deferred and which they cannot transact or carry on otherwise than by entering that Protected Area.

(*b*) Persons visiting their parents, parents-in-law, persons *in loco parentis*, husbands, or wives ; provided that the person to be visited was ordinarily resident in the Protected Area on April 1, 1944.

(*c*) Parents or persons *in loco parentis* visiting their children or wards in the Protected Area, if under the age of 16 years.

(*d*) Persons visiting near relatives in the Protected Area who are seriously ill.

(*e*) Patients going to or being in a hospital or nursing home within the Protected Area and tubercular patients going to or being in a sanatorium within the Protected Area.

(*f*) Persons passing through the Protected Area by train or public service vehicle without breaking their journey in the Protected Area.

(*g*) Students or pupils of a university, college, or school within the Protected Area.

(*h*) Persons taking up residence with a person resident in the Protected Area of whose household they are ordinarily members.

(*i*) Persons holding a certificate issued by a local authority that they have been rendered homeless as a result of enemy action, who enter the Protected Area to reside with relatives or friends therein.

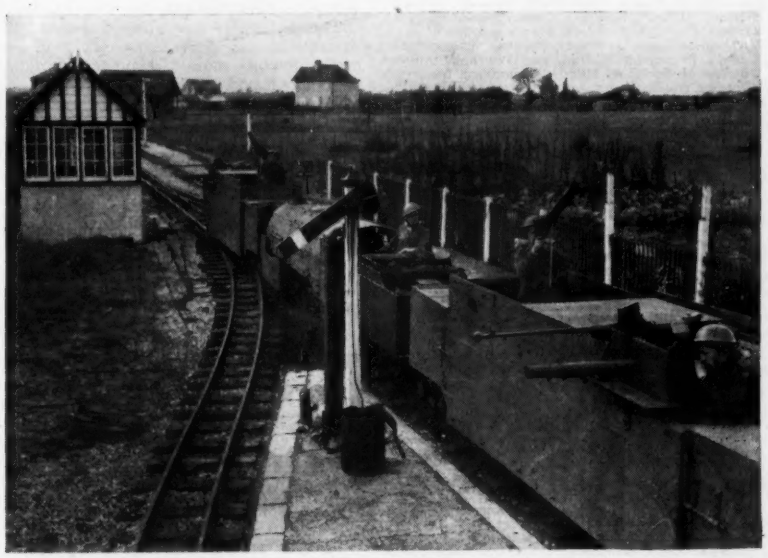
(*j*) Members of the Merchant Navy holding Form C.R.S. 52 or Form C.R.S. 53 returning home on leave.

This list may be subject to variation, of which public notice will be given, in accordance with operational requirements from time to time. Even with persons coming within one of the permitted classes, the Government has expressed the hope that they will refrain from entering a Protected Area save in cases of real necessity. Instructions concerning Service personnel on leave will be issued by the appropriate Service Department.

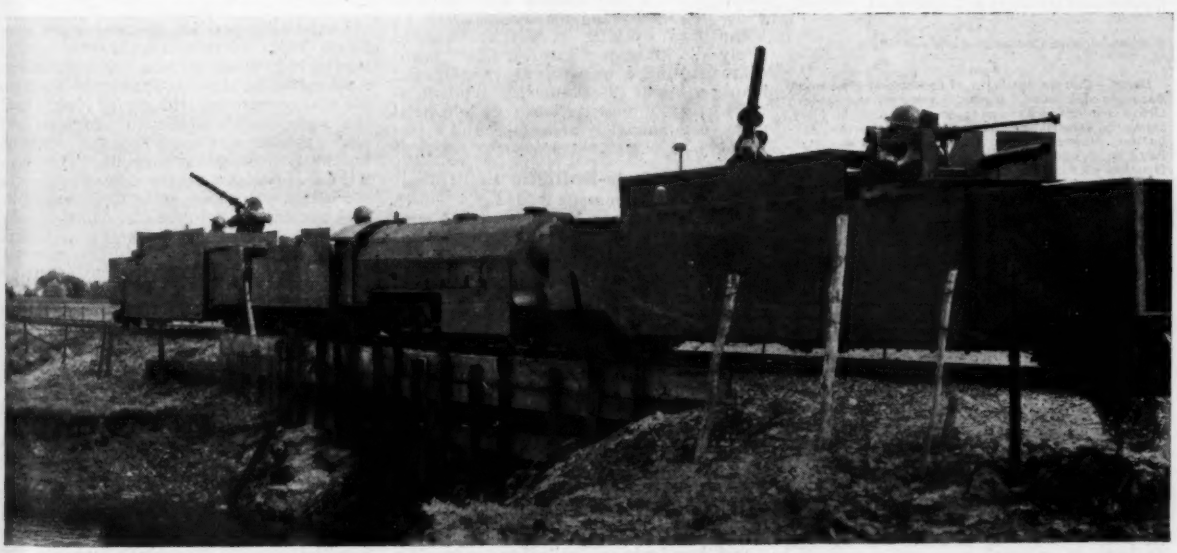
Individual permits to enter a Protected Area will not be required by persons entitled to enter it. Any person who enters a Protected Area may be required at any time to establish to the satisfaction of the police or Service authorities that he comes within one of the excepted or permitted classes. A person who fails to do so will not only be required to leave the area but will also be liable to be prosecuted, and if convicted of contravening the Order, will be liable to a fine of £100 or three months imprisonment or both. The police and local Service authorities cannot undertake to answer inquiries whether by letter, telegram, or telephone, from persons who wish to know whether they come within the exempted or permitted classes, nor can they give any permission to enter.

It will rest with any person who enters a Protected Area to satisfy himself, and to be ready to satisfy the police or the Service authorities when challenged, that he is within one of the excepted or permitted classes, and in order to avoid inconvenience he would be well advised to carry with him any document he may have showing the reasons for his presence in the area.

In a Protected Area everyone over the age of 16, whether a resident or not, is required to carry his or her identity card,



Armoured train passing through a station on the narrow-gauge Romney, Hythe & Dymchurch Railway



In the earlier stages of the war, when invasion of this country seemed imminent, armoured trains were provided for coastal railways, including the 1-*ft.* 3-*in.-gauge Romney, Hythe & Dymchurch Railway. This miniature unit, probably the smallest armoured train in the world, is shown patrolling the coast west of Folkestone. There is now no public traffic on this light railway, which was taken over by the War Office in* 1940

and to produce it on request by the police or Service authorities or when registering at an hotel, etc. Further, binoculars and telescopes must not be used by unauthorised persons.

These arrangements do not apply to the existing Protected Areas in the north and west of Scotland, where a military permit to enter will continue to be required until further notice.

The eight new Protected Areas are as follow :—

Area 1

Norfolk.—County Borough of Great Yarmouth; Borough of King's Lynn; Urban Districts of North Walsham, Cromer, Sheringham, Wells, and New Hunstanton; Rural Districts of Erpingham, Walsingham, Smallburgh, Docking, Blofield & Flegg, Freebridge Lynn, Marshland, and Loddon.

Suffolk.—County Borough of Ipswich; Boroughs of Aldeburgh, Southwold, Beccles, and Lowestoft; Urban Districts of Felixstowe, Woodbridge, Stowmarket, Saxmundham, Leiston-cum-Sizewell, and Halesworth; Rural Districts of Lothingland, Samford, Gipping, Deben, Blyth, and Wainford.

Essex.—County Borough of Southend-on-Sea; Boroughs of Maldon, Chelmsford, Harwich, and Colchester; Urban Districts of Canvey Island, Billericay, Benfleet, Rayleigh, Thurrock, Brentwood, Hornchurch, Burnham-on-Crouch, West Mersea, Brightlingsea, Clacton, Frinton & Walton, and Wivenhoe; Rural Districts of Rochford, Maldon, Chelmsford, Lexden & Winstree, and Tendring.

Area 2

Kent.—County Borough of Canterbury; Boroughs of Rochester, Chatham, Gravesend, Deal, Dover, Faversham, Folkestone, Gillingham, Hythe, Lydd, Margate, New Romney, Queenborough, Ramsgate, Sandwich, and Tenterden; Urban Districts of Ashford, Broadstairs & St. Peter's, Herne Bay, Sheerness, Swanscombe, Northfleet, Sittingbourne & Milton, and Whitstable; Rural Districts of Bridge-Blean, Dover, East Ashford, Eastry, Cranbrook, Elham, Romney Marsh, Dartford, Malling, Sheppey, Swale, Strood, Tenterden, and West Ashford.

Sussex.—County Boroughs of Brighton, Eastbourne, and Hastings; Boroughs of Arundel, Bexhill, Chichester, Hove, Lewes, Rye, and Worthing; Urban Districts of Bognor Regis, Burgess Hill, Littlehampton, Newhaven, Portslaue-by-Sea, Seaford, Shoreham-by-Sea, and Southwick; Rural Districts of Chailey, Chanctonbury, Chichester, Hailsham, Worthing, and Battle; Parishes of Albourne, Clayton, Fulking, Hurstpierpoint, Keymer, Newtimber, Poynings, Pyecombe, and Twineham in the Rural District of Cuckfield.

Area 3

Hampshire.—County Boroughs of Portsmouth, Southampton, and Bournemouth; Boroughs of Gosport, Romsey, Lymington, Christchurch, Eastleigh, and Winchester; Urban Districts of Havant & Waterloo, Petersfield, and Fareham; Rural Districts of New Forest, Droxford, Petersfield, Winchester, Romsey & Stockbridge, and Ringwood & Fordingbridge.

Dorset.—Boroughs of Poole, Wareham, Weymouth & Melcombe Regis, Blandford Forum, Dorchester, Bridport, and Lyme Regis; Urban Districts of Wimborne Minster, Swanage, and Portland; Rural Districts of Wareham & Purbeck, Dorchester, Beaminster, Bridport, Blandford, and Wimborne & Cranborne.

Area 4

Administrative County of the Isle of Wight.

Area 5

Devon.—County Boroughs of Exeter and Plymouth; Boroughs of Honiton, Torquay, Dartmouth, and Totnes; Urban Districts of Axminster, Seaton, Ottery St. Mary, Sidmouth, Dawlish, Exmouth, Budleigh Salterton, Ashburton, Newton Abbot, Teignmouth, Buckfastleigh, Paignton, Brixham, Kingsbridge, and Salcombe; Rural Districts of Axminster, Honiton, St. Thomas, Totnes, Kingsbridge, Plympton St. Mary and Newton Abbot.

Cornwall.—Boroughs of Saltash, Liskeard, Lostwithiel, Fowey, Truro, Penryn, Falmouth, Helston, St. Ives, and Penzance; Urban Districts of Torpoint, Looe, St. Austell, Newquay, Camborne-Redruth, and St. Just; Rural Districts of St. Germans, Liskeard, St. Austell; Truro, Kerrier, West Penwith and Isles of Scilly.

Area 6

That part of the County of Fife consisting of the Parishes of Tullialan, Culross, Saline, Torryburn, Carnock, Dunfermline, Beath, Inverkeithing, Dalgety, Aberdour, Auchtertool, Balingry, Auchterderran, Burntisland, Kinghorn, Kirkcaldy & Dysart, Kinglassie, Leslie, Wemyss, Markinch, Kennoway, Scoonie, Largs, Newburn, Kilconquhar, Elie, St. Monans, Carnbee, Pittenweem, Anstruther, Wester Kilrenny, and Crail, and all the Burghs therein, but excluding that portion of the Parish of Tullialan lying westward of the eastern side of the main road from Kincardine Road Bridge running north.

Area 7

Those parts of the Counties of Midlothian, West Lothian, and Stirling bounded on the east by the western boundary of the City of Edinburgh from the mouth of the River Almond to its intersection with the main Edinburgh—Falkirk road; and on the south by the north side of said road through Linlithgow (but excluding any part of the burgh of Linlithgow) to the cross-roads about 1 mile west of Polmont; on the west by the east side of the main road (A.905) from said cross-roads direct to Kincardine road bridge.

Area 8

That part of the County of East Lothian bounded on the east by the River Tyne; on the south by the north side of the main road from Dunbar to Edinburgh through East Linton, the Haddington by-pass, and Tranent (excluding any parts of the burghs of East Linton, Haddington, and Tranent); and on the west by the county boundary which runs to the Firth of Forth east of Musselburgh.

The restrictions on pleasure visits to, and on taking up permanent residence in, certain areas within the new Protected Areas, which were imposed by Regional Commissioners under Defence Regulation 16A, are superseded by the new Protected Areas Orders and are revoked with effect from April 1.

S.R. Staff Awards

Civilian awards for meritorious acts while on railway duty have been gained by 84 members of the Southern Railway staff. In addition, 53 awards have been made to staff serving with the various Services.

Women Electricians on the L.M.S.R.

The L.M.S.R. has already trained 105 women to be electricians. They wind armature coils, maintain and repair carriage lighting, test batteries, fix switches, and undertake electric wiring.

The Loss of the "St. David"

It has now been announced officially that the G.W.R. steamship *St. David* was sunk by enemy action off Anzio Bay, Italy, on January 24, while on Government service as a hospital carrier. Including the master, 13 of the crew are missing. She was sunk by a heavy German aerial attack despite having all hospital ship indications fully illuminated. The *St. David* was built by Cammell Laird & Co. Ltd., and was launched in December, 1931. She was a vessel of 2,702 gross tons, and first sailed on the Fishguard-Rosslare service in March, 1932. She was requisitioned for Admiralty purposes in September, 1939; was forthwith fitted out as a hospital carrier; and played an active part in evacuating casualties from Dunkirk in May, 1940.

Mexican Railway Wartime Control

It was announced in Mexico City on March 11 that President Avila Camacho had signed a Decree placing the Mexican railways on a war footing, and granting wide powers to the management to fix hours and working conditions, and to apply disciplinary measures. The board of management consists of the General Manager, four Government representatives, two representatives of industrial and commercial interests, and two workers.

Rapid Bridge-Building in India

During the summer of 1942, the North Western Railway of India was faced with a serious situation in Sind when floods breached one of its important lines. The Bridge Branch of the Engineering Department, however, got to work with such energy and speed that, by constructing pile and girder bridgework, it soon had the situation in hand. The valuable experience then gained has more recently stood the staff in good stead, when the Railway Board called upon the N.W.R. to go to the assistance of a sister railway in similar circumstances, to aid in restoring communications on a main trunk line carrying vital war and civilian traffic.

At short notice, a force of just over 100 men, equipped with cranes, pile-driving and other plant, was despatched many hundreds of miles to unfamiliar country. So rapidly did they get to work that within the remarkably short space of two months they had driven over 640 piles and completed 70 spans each 30 ft. long as their share of a broad-gauge temporary bridge required to span the breach. Working under difficult conditions and without help in the shape of local labour, the N.W.R. Bridge Branch force, under the supervision of Mr. Mohamed Boota Khan, Bridge Inspector, thus constructed a substantial bridge capable of carrying heavy main-line traffic and measuring more than 2,100 lineal feet in length, or at the average rate of more than a complete span—involving the driving of 10 piles a day.

Car-Loadings in India

Car-loadings (in terms of four-wheelers) in India during October, 1943, totalled 504,464 compared with 514,510 in October, 1942. This represented a decline of 3·22 per cent. on the broad-gauge, and an increase of 6·29 per cent. on the metre-gauge railways.

Budapest-Zagreb Air Service Resumed

The air service between Budapest and Zagreb, worked by Malert, the Hungarian national air traffic company, and temporarily discontinued last autumn, was resumed on January 19. There is one service a week, on Wednesdays.

Railway Nationalisation in Korea

Four privately-owned railways in Korea, with a total route length of 278 km. (173 miles) are to be nationalised in accordance with a recent decision of the Japanese Government. The official reason is that nationalisation will result in the simplification of the conveyance of such essential raw materials as iron ore, coal, and timber.

Japanese Passenger Traffic Curtailment

A system of Police permits for passenger journeys on the Japanese railways was announced by the Japanese Government on March 14, and further reference was made to the severe curtailment of passenger traffic in order to give preference to goods transport and to facilitate the evacuation of large cities. The special war increases of Japanese fares, to become effective on April 1, we recorded in our February 25 issue, page 197.

Conveyance of Cars by Rail in South Africa

Essentiality permits are now required in South Africa for the conveyance of motor-cars by rail outside provinces of registration. Application for a permit has to be made to the stationmaster at the centre from which the owner wishes to dispatch his car, and each application is considered on its merits by the transportation councils. The regulations apply also to the conveyance of a car within a province other than that of its registration, and in cases in which owners wish to send cars back to their provinces of registration.

The Inter-American Highway

Work in Panama on the Inter-American Highway to Costa Rica was discontinued on August 31, 1943, but its resumption is now being considered. The highway has been completed approximately to Boqueron, and the road is passable to Volcan, a distance of 357 miles from Panama City.

A weekly bus service between Managua (Nicaragua) and Tapachula (Mexico) is now provided by a combination of two bus lines, one recently inaugurated from Managua to San Salvador, and another, which has been established for some time, from San Salvador to Tapachula, whence the railway extends to Mexico City. This bus service uses a new bridge over the Goascoran River at Goascoran (Honduras) which was opened on December 15 last.

Staff and Labour Matters

Wages and Conditions of Drivers and Conductors — Messrs. Shergold & White, Salisbury

Representations having been made by the Transport & General Workers' Union to the South-Western Regional Transport Commissioner, to the effect that the wages paid to, and the conditions of employment of the persons employed by Shergold & White, Salisbury, Wiltshire, are not in accordance with Section 93 (1) of the Road Traffic Act, 1930, and the matter in dispute not having been otherwise disposed of, it was referred by the Minister of Labour & National Service to the Industrial Court for settlement in accordance with Section 93 (2) of the Road Traffic Act, 1930, as amended by Section 32 (1) of the Road & Rail Traffic Act, 1933. The Court in their award set out a schedule of rates of pay and conditions of employment, and find that in so far as the rates of wages and conditions of employment of the drivers and conductors employed by Messrs. Shergold & White in connection with the operation of their public service vehicles are less favourable than those set out in the schedule, they are not in accordance with the requirements of Section 93 Sub-Section (1) of the Road Traffic Act, 1930. The rates of pay set out in the schedule are as follows :—

	Per hour s. d.
(a) **Drivers**	
Commencing rate	1 3
After 12 months (52 complete pay weeks) service	1 4½
(b) **Conductors**	
Commencing rate	10
After 12 months (52 complete pay weeks) service	11½
After 24 months (104 complete pay weeks) service	1 0½
After 36 months (156 complete pay weeks) service	1 1½
After 48 months (208 complete pay weeks) service	1 1½

(c) **Appropriate Rate**
The expression "appropriate rate" used hereafter shall be deemed to be the rate of pay per hour to which a driver or conductor is entitled under Clause 1 (a) and (b) hereof respectively.

(d) In addition to the foregoing rates of pay, the following war wage is payable to all male and female employees :—

(a) of age 21 years and over	... 4½d. an hour
(b) of ages 19 and 20	... 3 11/16d. an hour
(c) of ages 17 and 18	... 2 7/16d. an hour
(d) of ages 14 to 16 inclusive	... 1 5/16d. an hour

The full hourly rate of war wage shall rank for overtime, Sunday labour, and all other work for which extra payment above the hourly rate would normally be paid.

Canteen Wages Board

The report of the Catering Wages Commission on the recommendation for the establishment of a wages board for industrial catering, and correspondence, have been published in a white paper (Cmd. 6509), and the Minister of Labour & National Service has issued an Order —the Wages Board (Industrial & Staff Canteen Undertakings) Order, 1944, No. 266, dated March 13, 1944, which provides for the establishment of the Wages Board. Canteens run directly by the Crown or local authorities, and those run in connection with catering businesses, such as hotels, boarding houses, restaurants, as well as canteens at hospitals, schools, and similar institutions, are not included.

The Wages Board will consist of equal numbers of representatives of employers and of employees engaged in operating the canteens, together with three independent members, one of whom will be chairman and one deputy chairman of the board. The board will have power to fix remuneration either generally, or for particular work for all or any of those employed in the canteens covered; to fix intervals for meals or rest; and to provide for paid holidays. Its determinations in these respects are made operative by Wages Regulation Orders made by the Minister of Labour & National Service. In addition to these powers, the Wages Board will have power to make recommendations through the Catering Wages Commission on matters concerning conditions of employment, health, or welfare of employees in canteens, and the improvement and development of industrial catering. The Catering Wages Commission explains in the White Paper that it found that the remuneration and conditions of employment of canteen workers were subject to considerable variations and were for the most part entirely unregulated by joint industrial-councils or other voluntary machinery. Although some of those who made representations to the commission favoured the view that these matters should be left to settle themselves, there was fairly general agreement that regulation by machinery established for the purpose was desirable, and would promote the best interests of the industry. The commission was in agreement with the latter view, and states that it has no reason for believing that industrial catering has not come to stay, and although the stress of war conditions has been necessary to demonstrate the value of industrial catering to the industrial life of the nation, its benefits now seem to be widely appreciated, and the Commission hopes that employer, employee, and housewife will be disinclined to see a return to the days of the midday sandwich, or the midday meal taken hurriedly at home.

Amongst the organisations which made oral representations to the Catering Wages Commission were the Railways Staff Conference representing the main-line railways, the London Passenger Transport Board and the National Union of Railwaymen. The Catering Wages Commission states that the Wages Board will include within its scope certain employees and their employers covered by joint voluntary-machinery, citing the main-line railways amongst others, and stresses its conviction that such machinery could be a very useful complement to statutory machinery. It would deplore any tendency for the creation of a wages board to be made a justification by either party in industry for abrogating existing voluntary machinery.

Government Control of Railways

Estimates of the pooled revenue receipts and expenses and resultant net revenue of the controlled undertakings for the year ended December 31, 1943, were given in a White Paper (Cmd. 6512) issued on March 24. The terms of the White Paper are as follow :—

1. The terms of the Railway Control Agreement are set out in full in an Order (S.R. & O. 1941, No. 2074) made by the Minister of War Transport on December 19, 1941, under the Railways Agreement (Powers) Act, 1940. In Command Paper 6436, presented to Parliament by the Minister of War Transport in March, 1943, estimates were given of the pooled receipts and expenses and the resultant net revenue of the Controlled Undertakings for the year ended December 31, 1942.

2. The estimated pooled receipts and expenses, including the standardised maintenance charges (see paragraph 5 below), for the year ended December 31, 1943, were approximately as follows :—

	£
Receipts and expenditure of the controlled railway companies and joint lines in respect of railway working and of the London Passenger Transport Board in respect of railway working and road services :—	
Receipts : Passenger	186,281,000
Freight	190,908,000
Miscellaneous	4,490,000
Total	£381,679,000
Expenditure	272,247,000
Net receipts	109,432,000
Other receipts and expenditure included in the pool (net)	Dr. 3,864,000
Net revenue of the pool	£105,568,000

The figures are subject to adjustment when receipts and expenditure have been finally ascertained.

3. The item "Other receipts and expenditure included in the pool (net)" includes the net revenue from ancillary businesses (*e.g.*, steamboats, docks, hotels, collection and delivery of parcels and goods) and rents, interest and other miscellaneous items.

4. The fixed annual sums payable by His Majesty's Government to the controlled undertakings amount to £43,469,000.

5. Under the provisions of the control agreement, charges for maintenance (including renewals) are standardised on the basis of an average pre-war charge adjusted for variations in assets in service and in price levels and are borne as pooled expenses. The amounts in the trust funds set up under Article 19 of the agreement (the operation of which was explained in Command Paper 6436) at December 31, 1943, were approximately as follow :—

Trust fund	Arrears of maintenance, etc. £	Interest (net) £	Total balance of fund £
Southern Railway ...	13,626,000	213,000	13,839,000
Gt. Western Railway	11,702,000	215,000	11,917,000
London, Midland & Scottish Railway	21,668,000	423,000	22,091,000
London & North Eastern Railway...	25,266,000	482,000	25,748,000
London Passenger Transport Board	18,322,000	320,000	18,642,000
	£90,584,000	1,653,000	92,237,000

Forthcoming Events

April 12 (*Wed.*).—Institute of Welding, at the Institution of Civil Engineers, Great George Street, Westminster, London, S.W.1, 6 p.m. "Factors controlling the weldability of steel," by Dr. L. Reeve.

April 15 (*Sat.*).—Metropolitan Graduate & Student Society, at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2, 2.15 p.m. "World communications," by A. G. Course.

April 28 (*Fri.*).—Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, 5.30 p.m. "The application of fabricated construction to machine design," by F. Koenigsberger. General meeting.

May 2 (*Tues.*).—Institution of Civil Engineers, Great George Street, Westminster, London, S.W.1, 5.30 p.m. "The strength of cast-iron girder bridges," by C. S. Chettoe, and Norman Davey. Ordinary Meeting.

Parliamentary Notes

Locked Doors on Railway Trains

On the motion for the adjournment of the House of Commons on March 15, Mr. J. J. Tinker (Leigh—Lab.) raised the question of locked doors on railway trains. He said that a few weeks ago he had put down a question to the Ministry of War Transport about an accident which took place on the London—Manchester express on February 6. He had received a letter from one of his constituents who was on the train, and had passed the letter on to the Minister. The letter, which was dated February 8, read as follows:—

"You have probably noticed an account of a fire on Sunday last on the London-Manchester express. I was on this train in the coach immediately behind that in which the fire started. I had, with others, to quit the coach hurriedly, for smoke was pouring into it. I passed through the next coach, but further progress to the rear was stopped, as the door which is adjoining the first-class compartment was locked. Congestion at this point was avoided by passengers jumping out on to the track, and there was no serious danger. The locked door caused much annoyance. It was subsequently opened, too late to be of any use. I think it must be evident, to anyone as near to the burning coach as I was, that we owe our immunity to the fact that the number of passengers in the first coaches was comparatively few, for these days. Had these coaches been full, the tale would have been very much different.

"From Servicemen who gave assistance, there can be no doubt that locked doors, again protecting first class passengers, were responsible in a great measure, if not wholly, for the casualties that did occur. I have written to you in the hope that if you think you can take any useful action you will do so. It does seem to me that some protest should be made by those who realise how near to danger we were and how materially that danger would have been increased if the train had been full. The locked doors which stopped progress down the train might have become a death-trap."

Something should be done about the matter to see whether the danger could be avoided, and it should be made public what doors ought to be locked. He had had recent experience of that matter travelling up from Liverpool, when he wanted to get into a first class compartment, but it was locked. He saw a porter and he unlocked it; when he got in, the porter locked it again; he protested, but the porter said: "If I do not lock the door other people will get in, and I shall have trouble to get them out." He asked the porter to unlock the door and chance whether anyone got in, and he did so.

He asked the Minister if he could see his way to issue an order that no doors be locked either on corridor trains or non-corridor trains, and let them see how that worked. If he could not do that, would he have a notice put up on doors that had to be locked saying that they had to be locked for a special purpose, so that it would be known that it was an order. As the position was now, they did not know whether it was done at the whim or the caprice of some official who had some friends coming, first class passengers, to prevent someone else from getting their seats. He wanted the Minister to make it definitely known what power the railway companies had to lock doors; if accidents happened and deaths occurred, who was responsible?

Mr. P. J. Noel-Baker (Parliamentary Secretary, Ministry of War Transport), replying, first dealt with the facts about the train to Manchester on February 6. On that train, the 10.15 from Euston, a fire had broken out in the second coach behind the engine, at Leighton Buzzard. The fire was caused by a cinder from the engine, which ignited the canvas cover of the gangway between the first and second coaches behind the engine. The second coach, which caught fire, was a composite coach, and the door in the corridor between the first and third class compartments was locked. Moreover, as Mr. Tinker said to him in private conversation, and as other Members had pointed out in private conversation with him, there were others doors on the train which were locked, and they had said, what other Members had said outside the House, that no doors should be locked in corridor trains at all; that locking must increase the risk to passengers in the case of accident or fire; that, in any case, it prevented the easy movement of passengers from one part of the train to another, and might cause needless overcrowding and discomfort in one part of the train, while there was ample space in another part; that, if the doors were locked to protect first class passengers they ought not to be locked; that it would be wrong in peacetime to lock them, and that, in conditions of war, with heavy traffic, it was doubly wrong to lock them. With that case very few people would seriously disagree, but it was not quite the complete picture of the case.

Dealing with the doors which were locked on the Manchester train, Mr. Noel-Baker said that the door on the second coach which caught fire was in the middle of the coach; the exit in front was blocked by fire and in consequence the passengers could not get to the other coach and could not move back because the door was locked. The communication cord was pulled, there were two engines and both engine drivers had acted very promptly and brought the train to a rapid stop. The passengers got out through the outer doors of the coach; there were 12 of them, all of them uninjured. The door in the corridor ought not to have been locked, it was a breach of the instructions which the Ministry had given. Three years ago, in April, 1941, there had been a serious accident in the North in which a coach caught fire; the communicating door was locked in a composite coach and six Ampleforth college boys lost their lives. After that the instructions had been changed, and it was laid down that in no case should the door in the middle of a corridor, in a composite coach, between first and third class compartments ever be locked. Then there was the episode at Leighton Buzzard; he regretted it. He had given instructions which, he hoped, would ensure that that rule would be rigorously observed in times to come.

Did that wholly dispose of the safety aspect of the matter? Ought not all doors to be left open against risk of fire? It had never been envisaged that the right system for passengers to escape from a burning coach was by passing right down the train to the rear or the front as the case might be. In fact, there were still in use many passenger coaches which had no corridors. It sometimes happened that they had *en route* to slip part of a train at its destination and they could not lock the doors, therefore, that system would not be a safeguard in that case. What the Ministry considered as the safety system was exactly what happened in this case; the communication cord should be pulled and the train stopped as rapidly as possible, and the communicating door between the compartments being open the passengers would always have an exit to get down on to the line, and in this case they had many exits. That system, as amended in 1941, and as it was today, was really sound, and they had never had an accident which had resulted from it. Their inspecting officers were unanimously of opinion that the safety provision it made was adequate, and in view of their expert knowledge and of the immense trouble with which they made out their reports on accidents, and the care with which they did their work, he thought the House would be justified in accepting their opinion as decisive.

Mr. Noel-Baker then turned to other doors that were locked on the Manchester train. He said there were on that train 17 coaches, five of which had brake compartments, what they called luggage vans, three of them were loaded with passengers' luggage, mails and other valuable goods. The doors were locked because the company had no spare guards who could travel in those brake compartments to look after the goods and because, in fact, all the companies were suffering every day grievous losses from the thefts which were taking place on those trains. He asked Mr. Tinker to consider the scale and gravity of the thieving which was happening now; last year the L.M.S.R. alone had claims against it for £1,000,000 worth of goods which were stolen whilst in their charge, nearly £3,000 a day. Black-market operators were at work. Only the other day a gang of passenger train thieves had been convicted at the Old Bailey and their work in wartime conditions was very much easier than it was in times of peace. Lack of lighting made it much easier for them to make away with the goods.

The reason why these doors were locked was simply that, and he suggested that there was no other way in which passengers' luggage, and other goods, could be protected except by locking the doors. There was no other way of checking the anti-social activities of these unpatriotic bandits who took advantage of war conditions and the difficulties of the railway staffs. The only doors which were locked on the Manchester train were locked for that reason; not a single door was locked to protect the privileges of the first class passengers. He felt sure the House would agree that it was right to lock those doors, and he believed he was not overstating it if he said that in nine cases out of ten when doors were locked today on trains, it was for that reason—to prevent theft. Of course, Mr. Tinker was right when he said that the instructions did allow doors to be locked between first and third class compartments to control the movement of third class passengers into first class accommodation; that was allowed, and it did happen, but it was only in a very small minority of cases. It was right, if first class travel was continued, to allow it.

He had not time to argue the case in favour of retaining first class travel. He admitted that the arguments against it in wartime were very strong, but the Government thought that the arguments in favour of retaining it were even stronger. In any case, the Government had decided that it must be retained and, if it was retained, it must be possible for the railway staff to do its job. He had to travel a great deal, and he constantly saw train attendants, ticket collectors, and guards asking people to go down the train to places where there were empty seats instead of standing in the corridor. The railway staffs did, whenever they could, distribute the load as equally as possible. He would consider Mr. Tinker's practical proposal of putting up notices and see what could be done.

Questions in Parliament

Railway Control Agreement

Sir John Mellor (Tamworth—C.) on March 22 asked the Parliamentary Secretary to the Ministry of War Transport, whether, in view of his claim that the Railway Control Agreement constituted fair consideration for the stockholders, he would, subject to the consent of the railway companies and so soon as national security allowed, publish the correspondence and records of discussions which led to the acceptance of the financial provisions.

Mr. P. J. Noel-Baker (Parliamentary Secretary, Ministry of War Transport): As I told Sir John Mellor in answer to a question on December 8 last, the negotiations which led to the Railway Control Agreement were confidential and I regret, therefore, that it would be contrary to the public interest to publish either the correspondence or the records of the discussions which took place.

Sir J. Mellor: Why cannot this be done provided that all the parties agree?

Mr. Noel-Baker: I cannot add to what I have said, because after the War, the Minister of War Transport will consider the whole question of publication on its merits.

Sir J. Mellor: But as many stockholders have been deprived of the possibility of dividends for the duration by this agreement, will the Parliamentary Secretary reconsider the matter?

Mr. Noel-Baker: I do not accept that statement.

Newport-London Trains

Mr. G. Daggar (Abertillery—Lab.) on March 22 asked the Parliamentary Secretary to the Ministry of War Transport whether he was aware of the crowded state, including corridors, of trains leaving Newport, Monmouthshire, for London, especially the 10.38 a.m. on Mondays, and that it was not unusual for scores of soldiers, sailors, and airmen to have to stand all the way to Paddington and afterwards to continue their journey to Newcastle; and if he was taking steps to deal with this problem.

Mr. Noel-Baker: It is true that the passenger trains between Newport, Monmouthshire, and London are very heavily loaded; so are most of the main-line passenger trains throughout the country. I regret it is not at present possible to provide additional trains.

Empty Lorry Journeys

Captain W. F. Strickland (Coventry—C.) on March 15 asked the Parliamentary Secretary to the Ministry of War Transport how many road transport vehicles were sent by his department from Hull to Manchester during the weeks ended February 19 and February 26, and the total number of unloaded miles covered on the outward and return journey.

Mr. Noel-Baker: So far as I have been able to ascertain, twenty-four vehicles were sent by the Road Haulage Organisation from Hull to Manchester during the week which ended on February 19, and twenty-five during the week which ended on February 26. Forty-eight out of these forty-nine vehicles travelled with full loads in both directions; the forty-ninth returned light from Manchester, because it needed repair.

Captain W. F. Strickland (Coventry—C.) on March 22 asked the Parliamentary Secretary to the Ministry of War Transport whether he was aware that, during the inclusive period February 21 to March 7 last, road vehicle 2Q5/96, of Leeds, with a carrying capacity, with its trailer, of 18 tons, travelled, under the instructions of his department, to and from London and Leeds, 1,538 unloaded and 1,535 loaded miles; and, as its average percentage load was only 32·7 of its capacity over the total distance covered and during its 1,538 unloaded miles it used approximately 160 gallons of diesel-oil, why was this wasteful use permitted and would it be avoided in future?

Mr. Noel-Baker: This lorry is one of some 22 vehicles in the North Eastern Division which are engaged on regular trunk services; I understand that it is the only one of these vehicles which has not been satisfactorily loaded in both directions. There is more traffic from Yorkshire to London than there is in the reverse direction but arrangements are being made which will enable loads to be provided for this vehicle on its return journeys. I am advised that Captain Strickland's figure of 32·7 per cent. is based on weight alone, whereas some of the loads were light for their bulk, and should be measured on the basis of cubic capacity.

Captain Strickland: Is the Minister aware that at least 50 per cent. of this load consists of soap, hessian and bottles? Would he regard these as essentially urgent traffic?

Mr. Noel-Baker: In some circumstances that traffic might be urgent. It depends upon what I am told by other departments.

Road Accidents

Mr. Rhys Davies (Westhoughton—Lab.) on March 17 asked the Parliamentary Secretary to the Ministry of War Transport if he would state the total number of fatal and non-fatal accidents on the roads of this country for each year from 1939 to 1943 inclusive.

Mr. Noel-Baker stated in a written answer: I regret that records of non-fatal accidents were not kept from August, 1939, to March, 1941, but the available figures are as follows:—

Year	Fatal accident	Non-fatal accidents	
		Seriously injured	Slightly injured
1939... ...	8,272	27,094 (January–July)	98,209 (January–July)
1940... ...	8,609	—	—
1941... ...	9,169	36,071 (April–December)	110,456 (April–December)
1942... ...	6,926	36,105	104,513
1943... ...	5,796	30,603	86,137

Forth Bridge Schemes

Mr. G. Mathers (Linlithgow—Lab.) on March 22 asked the Parliamentary Secretary to the Ministry of War Transport whether he had yet received the views of the responsible authorities regarding the relative merits of the Mackintosh Rock and Inchgarvie sites for a bridge over the Forth; and whether he would cause the competing schemes to be independently considered in all their aspects.

Mr. Noel-Baker: The joint committee of the local authorities has not yet sent me its views on the relative merits of the two schemes. When it does so, I will certainly consider whether it is desirable that the schemes should be examined independently.

Mr. Mathers: Is the Parliamentary Secretary aware that examination on behalf of local authorities is being carried out by the engineers responsible for one of the schemes? Will he keep that in mind in considering the question of an independent examination of the position?

Mr. Noel-Baker: Yes, sir, I will certainly keep that in mind.

Mr. W. Gallacher (West Fife—Communist): Will the Parliamentary Secretary have copies of the plans that are in existence put in the Library for the benefit of Scottish and other members who wish to see them?

Mr. Noel-Baker: I do not like to interfere with what the local authorities are doing now.

Public-Utility Corporations

Sir Irving Albery (Gravesend—C.) on March 22 asked the Parliamentary Secretary to the Ministry of War Transport if the restriction at present imposed upon the publication of the accounts and annual reports of public-utility corporations under Defence Regulation 56 could now be withdrawn?

Mr. Noel-Baker: The restrictions imposed by the Minister of War Transport on the publication of accounts and other documents apply only to certain statutory transport undertakings and to lighthouses. His directions allow authorised persons either to receive copies of these accounts and documents, or to inspect them. The security reasons for the directions still hold good, and I regret, therefore, that the restrictions cannot be withdrawn.

Sir Herbert Williams (South Croydon—C.): Can the Parliamentary Secretary say in what way non-publication of transport undertakings enables this country to conceal the routes of our railways from the enemy?

Mr. Noel-Baker: It is not a question of routes but of the traffic that passes, and I must take the advice of the security authorities, which hold strongly that this would reveal information of military importance to the enemy.

Sir H. Williams: But as the railway lines are full of traffic, what difference does it make? Is it not rather childish?

There was no reply.

Supplementation of Government Employees' Service Pay

Lt.-Colonel C. N. Thornton-Kemsley (Kincardine & Western—C.) on March 17 asked the Chancellor of the Exchequer by what total amount a week the service pay of previous employees now in the armed forces was being supplemented by the following departments: the Treasury; the India, Colonial, Foreign, Home, Scottish, Dominion, and Post Offices; the Boards of Education and Trade; and the Ministries of Agriculture, Health, Works, War Transport, Labour, Information, Fuel & Power, Food, Supply, and Pensions.

Sir John Anderson (Chancellor of the Exchequer) in a written answer stated: The estimated amounts a week are as follows, except where otherwise stated they are estimates relating to the financial year 1944-45:—

	Per week £
Treasury (& Subordinate Departments) ...	243
India Office	110
Colonial Office	123
Foreign Office (including Diplomatic & Consular Establishments)	98
Home Office	265
Scottish Home Department	123
Department of Agriculture for Scotland ...	215
Department of Health for Scotland	346
Scottish Education Department	57
Dominions Office	26
Post Office	87,288
Board of Education	448
Board of Trade	423
Ministry of Agriculture & Fisheries	762
Ministry of Health	4,212
Ministry of Works (Headquarters Vote) ...	1,359
Ministry of War Transport (a)	3,354
Ministry of Labour & National Service ...	4,423
Ministry of Information (b)	1 5s.
Ministry of Fuel & Power (b)	148
Ministry of Food (b)	123
Ministry of Supply (c)	7,503
Ministry of Pensions	101

(a) Average for Financial Year 1943-44.
(b) Current rate, March, 1944.
(c) Average for year ended March, 1943, the latest date for which figures covering the whole Ministry are readily available.

Notes and News

Signal & Tablet Inspector Required.—The services of a signal & tablet inspector are required by the Sudan Railways. Details are given in our Official Notices on page 351.

Traffic Manager Required.—The directors of the Belfast & County Down Railway Company are prepared to receive applications for the position of Traffic Manager (see Official Notices on page 351).

Metropolitan Railway Surplus Lands Co. Ltd.—Net receipts for the year 1943 were £37,000 (£35,770) and £10,000 (nil) is deducted from war damage contributions suspense account. The dividend is maintained at 1 per cent. absorbing £26,409 and leaving £11,421 to be carried forward, against £10,830 brought in.

Planning of Working Hours.—At an ordinary meeting of the Society of Engineers (Incorporated) to be held in the apartments of the Geological Society, Burlington House, Piccadilly, W.1, at 5 p.m. on April 3, Mr. R. N. Cotton, of the Production Efficiency Board, Ministry of Aircraft Production, will lecture on "The Planning of Working Hours."

Road Accidents in February, 1944.—The return issued by the Ministry of War Transport of the number of persons reported to have died, or to have been injured, as a result of road accidents in Great Britain during the month of February last shows 545 deaths (compared with 511 in February, 1943), 2,415 seriously injured (compared with 2,479 in February, 1943), and 6,568 slightly injured (compared with 6,617 in February, 1943).

British Thomson-Houston Co. Ltd.—For the year 1943 the trading profit, after deducting all expenses and charges other than interest on debentures and loans, and after providing for taxation, was £580,362 (£562,883). After deducting interest on debentures and loans £87,230 (£78,675) and £226,435 (£224,950) for depreciation there is a balance of £266,697 (£259,258) to which has to be added £254,171 brought in, making a total of £520,868. A transfer of £150,000 (£100,000) is made to general reserve, and the dividend on the ordinary shares is at the rate of 7 per cent. for the year, carrying forward £248,368.

British Wagon Co. Ltd.—Net earnings for 1943 were £93,526 (£93,070) and net dividend income £4,340 (£4,195), making £97,866. Deducting debenture and deposit interest £28,958, directors' fees £1,915, and taxation £36,776 leaves a profit of £30,217 (£28,946). Adding £38,545 brought forward makes £68,762. Interim dividends are paid of 3s. a share on shares with £3 paid up and of 1s. a share on shares with £1 paid up, less tax, absorbing £3,250. Further divide ds are being paid of 12s. and 4s. a share on the above shares, respectively, less tax, and amounting to £13,000. After making an additional provision of £8,000 for taxation the amount carried forward is £44,512.

Curtailment of Railway Traffic in Spain.—The operation of fast and through trains in Spain was curtailed substantially on February 4, officially to save coal and other materials. Fast and through trains now operate only on three days a week in each direction, on what were formerly daily services. Thus, the Sud Express leaves Madrid on Tuesdays, Thursdays, and Saturdays only, and in the reverse direction leaves Hendaye on Mondays, Wednesdays, and Fridays. Similar restrictions apply to the Madrid - Barcelona, Madrid - Bilbao, Madrid - Valencia, Madrid - Alicante, and Madrid-Cartagena, services. On the three lines last-named fast trains normally operated only thrice weekly in each direction, and the curtailment is much more drastic, as in these instances the service has been reduced to once weekly in each direction.

Railway Nationalisation in Germany.—A preliminary survey of Reichsbahn activities in 1943 says that more private railways in the Ostmark, and five private railways in the old Reich, have been taken over by the Government.

Cost-of-Living Index. — The official cost-of-living index figure at March 1 last was 100 points above the level of July, 1914, the same as at February 1. In March 1938 it was 56 points and in March, 1939, 53 points above July, 1914.

East Kent Light Railways Company.—Net revenue for the year 1943 amounted to £3,510 (£3,578). Reserve for income tax takes £1,350 (£1,400) and debenture interest at 1¾ per cent. absorbs £2,222 (same), leaving £12 to be carried forward, against £74 brought in.

Oldham, Ashton - under - Lyne & Guide Bridge Junction Railway Company.—The total dividend for the year 1943 on the £40,000 share capital held by the public is 4¾ per cent. (same). After allowing for estimated settlement in respect of Government control, there is a net revenue debit of £4,772 (same). The amount receivable from the L.N.E.R. and the L.M.S.R. under the terms of the lease is again £6,672.

Road Transport Amalgamation in France.—The Société de Transports en Commun de la Region Parisienne (S.T.C.R.P.), the company formerly owning and operating the Paris tram and bus services, until they were taken over by the Paris Metro, recently absorbed the Compagnie Nationale de Transports Automobiles. The S.T.C.R.P. owned 20,000 Nationale shares. Shareholders in the latter receive two S.T.C.R.P. shares in exchange for three Nationale shares.

Bristol Tramways & Carriage Co. Ltd.—This company is controlled by the Western National Omnibus Co. Ltd., which is jointly controlled by the Great Western Railway Company and the National Omnibus Co. Ltd. Profit for the year 1943, after depreciation, amounted to £861,390 (£899,829), and the net profit, after providing £524,515 (£545,103) for income tax and E.P.T., £127,688 (£132,279) for fuel tax and vehicle licences, and for other charges, amounted to £198,515 (£210,327), and £30,534 was brought in. The ordinary dividend is again 10 per cent. (less tax), and £25,000 (£35,000) is placed to reserve, leaving £29,408 to be carried forward. Gross receipts were higher, but this has been more than offset by higher expenses.

Manchester Ship Canal Reserves.—In the course of his address at the recent annual general meeting of the Manchester Ship Canal Company, Sir Frederick J. West, the Chairman, referred to criticisms of the accounts, and the powers of the directors to make provision for reserves, notwithstanding Section 12 of the Manchester Ship Canal Finance Act, 1904. That section provided for distribution of profits in certain proportions among the preference and ordinary shareholders after meeting prior charges and the dividend on the Corporation preference stock. Twenty years ago counsel had advised that this section had not the effect of repealing Sections 120 and 122 of the Companies' Clauses Act, 1845, by virtue of which the directors had the discretion of building up necessary reserves. This opinion had recently been re-stated by counsel. If this discretion were effectively challenged the directors would immediately apply to Parliament to confirm the company's powers to make proper provisions and reserves.

Hoffmann Manufacturing Co. Ltd.—The report for the year 1943 shows that after providing for maintenance, renewals, depreciation, taxation, etc., the profit was £217,930 (£222,334); add £67,869 brought

British and Irish Railway Stocks and Shares

Stocks	Highest 1943	Lowest 1943	Prices Mar. 28, 1944	Prices Rise/Fall
G.W.R.				
Cons. Ord.	65½	57½	58½	– ½
5% Con. Pref. ...	120½	108	116	– ½
5% Red. Pref. (1950)	110½	106	108	–
5% Rt. Charge ...	137½	123½	129½	–
5% Cons. Guar. ...	135½	121 7/16	127½	–
4% Deb.	118	107½	113	–
4½% Deb.	119	109 7/16	114½	– 1
4½% Deb.	124½	116	121½	–
5% Deb.	138	127	131½	–
2½% Deb.	77	72½	74½	–
L.M.S.R.				
Ord.	34 11/16	28	30½	–
4% Pref. (1923) ...	66½	58	59½	–
4% Pref.	80½	73	76½	– ½
5% Red. Pref. (1955)	105¾	102	104½	–
5% Guar.	107	90½	101½	– ½
4% Deb.	10..¾	103½	106	–
5% Red. Deb. (1952)	111½	108	109½	–
L.N.E.R.				
5% Pref. Ord. ...	12 7/16	7⅜	9	– ½
Def. Ord.	5⅜	3⅜	4½	–
4% First Pref. ...	66½	57½	60	–
4% Second Pref. ...	36½	30½	32½	–
5% Red. Pref. (1955)	99⅜	93	100½	+ 1
4% First Guar. ...	102⅜	94	98	–
4% Second Guar. ...	93½	85⅜	90	– ½
3% Deb.	86⅜	78⅜	81½	–
4% Deb.	109 7/16	101⅜	105	–
5% Red. Deb. (1947)	106½	102	103§	– 1
4½% Sinking Fund Red. Deb.	108	103½	104½	–
SOUTHERN				
Pref. Ord.	80	72½	76	– ½
Def. Ord.	26⅜	20⅜	24½	+ ⅜
5% Pref.	119½	106⅜	114½	– 1
5% Red. Pref. (1964)	114	100½	113½	–
5% Guar. Pref. ...	136	122	128½	–
5% Red. Guar. Pref. (1957)	117	109⅜	113½	–
4% Deb.	117½	106	111	–
5% Deb.	137	126	130½	–
4% Red. Deb. (1962-67)	112	106½	109½	–
4% Red. Deb. (1970-80)	112	107	110½	
FORTH BRIDGE				
4% Deb.	109	104⅞	105	–
4% Guar.	105	102½	103½	–
L.P.T.B.				
4½% "A"	125 11/16	114	121½	– 1
5% "A"	133 7/16	123	130½	–
3% Guar. (1967-72)	100½	97	99	–
5% "B"	124	114	119½	– 1
"C"	72	53	70	–
MERSEY				
Ord.	34½	27	33½	–
3% Perp. Pref. ...	68	59½	69	–
4% Perp. Deb. ...	104	102½	103	–
3% Perp. Deb. ...	83	76½	79	–
IRELAND BELFAST & C.D.				
Ord.	9	6	6½	–
G. NORTHERN				
Ord.	24½	16	21⅜	+ 1⅜
Pref.	—	—	39½	+ 1½
Guar.	—	—	61	+ 4
Deb.	—	—	84½	+ ½
G. SOUTHERN				
Ord.	30	9½	52	+ 3½
Pref.	30	11	52	+ 2½
Guar.	64	26½	68	+ 2
Deb.	88½	51⅜	90	+ ½

§ ex-dividend

OFFICIAL NOTICES

OVERSEAS EMPLOYMENT: SUDAN GOVERNMENT RAILWAYS require the services of a SIGNAL AND TABLET INSPECTOR, preferably unmarried. Candidates should have had workshop and outdoor experience in the maintenance and renewal of signalling installations, Tablet, Telephone and Telegraph Instruments. They should also have some knowledge of train control apparatus and be able to prepare signal diagrams, interlocking table and working charts. The candidate, on appointment, will be required to take charge of a district with Sudanese staff under him. He must possess personality, tact and aptitude for control of staff.

Starting rate of pay £E.324-360 per annum (£E.1 = £1 0s. 6d.) according to age and qualifications, with increases in accordance with Government Scales, viz., £E.324-360-396-480-540-600-660-720-780, increases being biennial up to £E.660 and thereafter triennial. First increase subject to passing Arabic Examination.

Successful candidate will be appointed on Probationary contract for five years and subscribe to the Provident Fund, after which—if not accepted to pension—he will be paid a bonus equivalent to 20 per cent. of the pay drawn between the date of his retirement and the completion of two years' service. Free passage on appointment. Strict medical examination.

Written applications (no interviews), giving full details of age, National and Armed Forces registration numbers, qualifications, experience and name and address of present employers, should be sent to the Secretary, Overseas Manpower Committee (Ref. 957), Ministry of Labour and National Service, Alexandra House, Kingsway, London, W.C.2.

Belfast and County Down Railway

THE Directors of the Belfast and County Down Railway Company are prepared to receive applications for the position of Traffic Manager. Applicants must have up-to-date traffic management experience and will have to take up duty by end of July.

Full particulars of experience and age, with copies of three recent testimonials, together with Salary expected to be sent to the Chairman of Directors, Belfast and County Down Railway Company, Belfast, Northern Ireland.

WANTED—Clean Copy of "Railway Accounts," published by Pitman's in 1930.—Write, stating price, to Box 233, *Railway Gazette*, 33, Tothill Street, S.W.1.

forward, making £285,799. Debenture interest takes £12,221 (£12,567), and £50,000 (same) is transferred to general reserve. Final dividend on the ordinary shares is 10 per cent., free of tax, making 17½ per cent. tax free for the year, carrying forward £98,578.

Tidy London Stations Competition.—The "Stations Tidiness" Competition on London Transport railways, which has been in abeyance since the war began, has been revived. Awards, consisting of silver-mounted shields and diplomas, will be made at the end of the year. The awards will be displayed in the booking halls of the winning stations.

Thos. Firth & John Brown Limited.—Trading profit for 1943, after undisclosed provision for deferred repairs and taxation was £578,853. After directors' fees, debenture and mortgage interest, and depreciation, the net profit is £350,870 (£311,357). Adding £180,547 brought in makes £531,417. Appropriations are made of £10,000 (£15,000) to war damage contribution and £100,000 (£75,000) to reserve for contingencies. The final dividend on the ordinary shares is 5½ per cent., free of tax, making 10 per cent. free of tax, for the year, the same as for 1942, leaving £224,417 to be carried forward.

Air Links in Brazil.—While the various railway links in the northern part of Brazil remain incomplete, as shown in the map we published in our January 7 issue (page 14), air links are providing ever increasing facilities. A daily air line from Rio de Janeiro to Belem was established on January 15 by Panair do Brasil, and is believed to be the longest air line in the world within the confines of one country. Twice weekly the direct route is taken, and five times weekly the coastal route is adopted, calling at Fortaleza, where contact is made with another isolated railway system. The direct route was inaugurated once weekly in November, 1943.

Italian Tunnel Disaster Inquiry.—The board of Allied and Italian officers which has been inquiring into the breakdown of a train in a railway tunnel in central-southern Italy on March 3 (to which reference was made in our March 10 issue) recently reported that the 426 passengers (not "over 500," as previously stated) lost their lives from carbon-monoxide poisoning as the result of an "act of God." It added that the catastrophe was caused by a combination of natural causes, such as murky atmosphere, lack of wind of sufficient velocity to ventilate the tunnel, and wet rails which ordinarily might have been expected to occur singly and not simultaneously. The board found that no single fact contributed more than another to the catastrophe, which could not be attributed to human negligence nor mechanical failure. Nearly all the victims were civilians, mainly Italian.

Agreed Charges.—Applications have been made to the Railway Rates Tribunal for the approval of 55 further agreed charges under the provisions of Section 37 of the Road & Rail Traffic Act, 1933. Notices of objection must be filed on or before April 13.

G. D. Peters & Co. Ltd.—In the report for the year 1943 it is stated that the profit after all expenses, depreciation, and E.P.T. amounted to £63,575 (£54,832), and the balance brought forward was £22,733. Deductions are made of £35,000 (£33,000) provision for income tax and £5,000 (same) transfer to staff fund. The final dividend of 7½ per cent. less tax (same) makes, with the bonus of 2½ per cent. less tax (nil), 17½ per cent. (15 per cent.) less tax for the year, leaving £33,019 to be carried forward.

Vulcan Foundry Limited.—The balance of the profit and loss account for the twelve months to December 31, 1943, is £169,113. Deducting £144,833 appropriated for taxation on the year's profits and adding £43,873 brought forward there is an available balance of £68,153. From this balance has to be deducted an interim dividend of 2½ per cent. on the cumulative preference shares paid in September, 1943, amounting, less tax, to £1,250 leaving £66,903. The directors now recommend a final dividend of 2½ per cent. on the 5 per cent. cumulative preference shares and 5 per cent. on the ordinary shares, both less income tax at 10s., carrying forward £44,526.

Salta-Antofagasta Railway Construction.—Reuters reports that work, the completion of which next year is expected, has been commenced on the construction of the remaining section (approximately 110 miles) of the railway to connect Salta (Argentina) with Antofagasta (Chile) *via* Positos, the Socompa Pass, and Imilac. The cost of this work is estimated at about 15,500,000 Chilean pesos. A map of the route, and an article on the Argentine-Chilean convention under which construction of the line was to be hastened, were published in our September 3, 1943, issue.

Associated Electrical Industries Limited.—As shown by the profit and loss account, the balance for the year 1943 (including dividends from subsidiary companies) after providing for expenses of management, bad and doubtful debts, directors' fees, and maintenance of buildings and machinery, and after providing for contingencies and taxation, was £695,266, compared with £686,527 for 1942. From this balance a sum of £235,295 (£233,707) is deducted for depreciation, leaving a balance carried to balance sheet of £459,971 (£452,820). Adding £289,736 brought forward makes the total profit available for distribution £749,707, from which £150,000 is appropriated to special reserve account, leaving £599,707. Preference dividends require £52,306. The directors recommend a dividend at the rate of 10 per cent., less tax, on the ordinary stock for the year (same), absorbing £246,092, and leaving £301,309 to be carried forward.

"British Railways in Peace and War."—The brochure "British Railways in Peace and War," published by the British Railways Press Office, which was reviewed at some length in our issue of December 31, 1943, is now on sale, price 1s.

Restaurant Car Withdrawal.—The Railway Executive Committee announces that restaurant cars on ordinary main-line services as usual will be withdrawn for the Easter period, and it has been decided not to reinstate them for the time being.

Electrification in Brazil.—Permission to construct two parallel electric transmission lines between the power house at Itupararanga and the city of Sorocaba, Brazil, has been granted, according to press reports. These two lines will extend some 10·4 km. (6½ miles). The transmission, which will be at 88,000 volts, will supply the Sorocabana Railway with electric power.

Report on Ilford Collision, L.N.E.R.—The report to the Ministry of War Transport on the collision which occurred at Ilford Station, L.N.E.R., on January 16, and caused the deaths of nine persons, states that fog, described as the worst for the last four years, primarily contributed to the accident. The report adds that, although it is not suggested that there was any undue delay in the fog signalling arrangements, it was unfortunate that one signal was not manned in time. In all probability a detonator at that signal would have had preventive effect.

Iron and Steel Research.—At its meeting on March 21 the Council of the British Iron & Steel Federation approved a scheme prepared by a committee set up by Sir James Lithgow, M.C., for the formation of the British Iron & Steel Research Association. That body is to take over the work of the Iron & Steel Industrial Research Council. The constitution of the Association provides for collaboration with the Iron & Steel Institute, with the right of nomination of members of the Council of the Association. The Federation will nominate members who will represent the different departments of the industry—scientific, technological and management. Authority has been given to the Association to spend in the first instance up to £250,000 a year. The Iron & Steel Industrial Research Council continues to direct the considerable amount of research which it has in progress.

Railway Stock Market

As was to be expected the savings drive has monopolised attention in the City, and consequently business in Stock Exchange markets has remained on a small scale. Nevertheless, the general undertone in security values was again steady under the lead of British Funds. The activity which developed in Argentine railway stocks has died down, and only a small part of recent gains has been held. A number of fractional declines were shown among home railway prior charges, due to the absence of revival of the increased demand in evidence a few weeks ago. There was, however, little selling reported, and bearing in mind the yields offered and the high-class investment merits of these stocks, it can be expected they will attract renewed attention when markets become reasonably active. Only small movements have been shown among home railway junior stocks, and it would appear that they have shown a better tendency than might have been expected, bearing in mind the inactive market conditions which have ruled this week. Sentiment was unresponsive to the revenue figures given in the White Paper, which show that in respect of 1943 the Exchequer received £62,099,000, as compared with the fixed rental of £43,469,000 received by the railways under the control agreement. It is realised that so long as the latter is in force, the amount of annual rental is fixed, and that consequently, dividends on the junior stocks are also virtually fixed at around those paid for 1943. The high yields on the junior stocks continue to reflect uncertainty as to the position that will rule after the war. It is, however, now generally assumed that the control agreement will remain in force until Japan as well as Germany is defeated, and that it may in fact continue until there is final agreement on the question of post-war transport organisation and control. There seems little doubt that revenue of the railways in the current year will record a further considerable advance. Meanwhile, however, £78 millions of L.N.E.R. capital will continue out of the dividend list unless the efforts of stockholders and others to secure revision of the control agreement meet with success; but this will depend on the attitude of the Government. It is recognised that any concession in respect of L.N.E.R. preferred and deferred stocks could not be effected without general revision of the terms of the control agreement, and this would be a much more complicated matter than is often realised. On the other hand, it would certainly seem there is scope for reasonable capital appreciation in home railway stocks, bearing in mind the high yields obtainable and the fact that dividends at around current rates can be regarded as being virtually guaranteed by the Government so long as the control agreement remains in force.

Great Western ordinary improved to 59¼ but later eased to 59, the same level as a week ago. Great Western 5 per cent. preference was maintained at 116½ and the 4 per cent. debentures improved half-a-point to 113½; but compared with a week ago, the guaranteed stock lost a similar amount at 127½. L.M.S.R. ordinary was 30⅞, compared with 30¾ a week ago; the senior preference eased to 76½, but the 1923 preference at 59¼ was the same as a week ago. L.M.S.R. guaranteed moved down fractionally to 101½; the 4 per cent. debentures were maintained at 106, and the 5 per cent. debentures at 109½. Among L.N.E.R. issues, the deferred eased from 4⅛ to 4⅜, and the preferred from 9⅛ to 9⅛, but the second preference was slightly better at 32¼, compared with 31⅞, and the first preference at 59¾ was maintained on balance. L.N.E.R. first guaranteed has been maintained at 98, but the second guaranteed moved slightly lower at 90, compared with 90½. L.N.E.R. 3 per cent. debentures at 81½, and the 4 per cent. debentures at 105 showed fractional declines. Southern deferred was 24⅜, against 24½ a week ago, the preferred 75¾, compared with 76¼, while the 5 per cent. preference lost half-a-point at 115. London Transport "C" failed to hold all an earlier gain, but at 70¾ was better on balance; the "A" and "B" stocks, however, showed small declines.

Earlier gains were not held by Argentine railway stocks. B.A. Gt. Southern at 13½ was fractionally lower than a week ago; the 5 per cent. preference reacted to 26, and the 4 per cent. debentures were a point down at 59½. Elsewhere, San Paulo ordinary was 49, while Antofagasta improved to 11½. French railway sterling bonds were better on balance. Canadian Pacifics eased to 15¼.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ending	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1941/2	No. of Weeks	Aggregate traffics to date: Totals 1942/3	Aggregate traffics to date: Totals 1941/2	Aggregate traffics to date: Increase or decrease	Shares or stock	Prices: Highest 1943	Prices: Lowest 1943	Prices: Mar. 28, 1944	Prices: Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chile) & Bolivia	834	19.3.44	24 810	– 2 820	12	342,040	321,840	+ 20 200	Ord. Stk.	15¾	10	12	Nil
	Argentine North Eastern ...	753	18.3.44	14,364	+ 4,128	38	539,622	462,420	+ 77.202	..	7⅜	5	5	Nil
	Bolivar	174	Feb., 1944	5 258	+ 739	9	9,947	9,811	+ 136	6 p.c. Deb.	22½	18	17½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	23½	19	17	Nil
	B enos Ayres & Pacific ...	2,807	18.3.44	129,300	+ 9 000	38	3,897,720	3,709,740	+ 187.980	Ord. Stk.	8½	5¼	6½	Nil
	Buenos Ayres Great Southern	5,080	18 3 44	209,400	+ 28,500	38	6,764,820	6,103,860	+ 660.960	Ord. Stk.	17½	9½	13½	Nil
	Buenos Ayres Western ...	1,930	18.3.44	63.600	+ 8,580	38	2.091,780	2,042.040	+ 49,740	..	16	9⅞	11½	Nil
	Central Argentine	3,700	18.3.44	171,750	+ 34,350	38	5,610,042	5,025,405	+ 584,637	..	10¾	6½	8½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4⅞	3	4	Nil
	Cent. Uruguay of M. Video	972	18 3 44	32.685	– 3 854	38	1.259,498	1,040.970	+ 218,528	Ord. Stk.	7⅞	4½	5½	Nil
	Costa Rica	262	Feb., 1944	22 805	+ 4,909	33	175,664	114,452	+ 61.212	Stk.	16	12½	15	Nil
	Dorada	70	Fe · 1944	21,672	+ 2,272	9	47,692	39,990	+ 7 702	1 Mt. Db.	96	92	93½	[illegible]
	Entre Rios	808	18.3.44	18,144	+ 2,616	38	741,462	672,516	+ 68 946	Ord. Stk.	9	5¼	6	Nil
	Great Western of Brazil ...	1,030	18.3.44	25 3 0	+ 7,200	12	267,300	196,500	+ 70,800	Ord. Sh.	59/9	24/4½	26/3	Nil
	International of. Cl. Amer.	794	Dec., 1943	$696,368	+ $50 157	52	$7,285,649	$6,200,530	+ $1,085,119	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pret.	2⅜	1⅛	⅜	Nil
	La Guaira & Caracas... ...	22½	Feb., 1944	7,615	– 1.030	9	14,255	18,080	– 3,825	5 p.c. Deb.	90	80	88½	Nil
	Leopoldina	1,918	18.3.44	51.061	+ 16,006	12	491,716	361,437	+ 130.279	Ord. Stk.	⅞	4	5	Nil
	Mexican	483	14.3.44	ps. 366,100	– ps. 800	11	ps.4,151,400	ps. 3,391,400	+ ps. 760,000	Ord. Stk.	1⅜	⅜	½	Nil
	Midland Uruguay	319	Dec., 1943	18,039	+ 1,788	26	102,490	82,154	+ 20,336	—	—	—	—	—
	Nitrate	382	15.3.44	5,730	+ 1,424	10	44,100	27,604	+ 16,496	Ord. Sh.	83/9	71/3	68/9	Nil
	Paraguay Central	274	17.3.44	$48.009	+ $978	12	$1,892,695	$1,470,890	+ $421,805	Pr. Li. Stk.	75	51½	69	8⅞
	Peruvian Corporation ...	1,059	Feb., 1944	98,853	+ 15,445	35	8 7.484	666,842	+ 180,642	Pref.	17⅞	10¾	10	Nil
	Salvador	100	Jan., 1944	c193,000	+ c 16,000	29	c 796,000	c 609,000	+ c 187,000	—	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	71	57	49	4½
	Taltal	160	Feb., 1944	4,560	+ 2,065	36	45,270	36,911	+ 8,359	Ord. Sh.	37/6	20/–	17/6	Nil
	United of Havana	1,301	18.3.44	86,003	+ 16,065	38	1,980,950	1,833,444	+ 147,546	Ord. Stk.,	8⅛	3¼	3	—
	Uruguay Northern	73	Dec. ,1943	1,568	– 117	25	8,699	7,910	+ 789	—	—	—	—	—
Canada	Canadian Pacific	17,034	21.3.44	1,189,000	+ 158.600	12	13,048,200	10,971,000	+ 2 077,200	Ord. Stk.	18	13⅞	15¼	Nil
India†	Barsi Light	202	Feb., 1944	25,575	+ 3.285	47	237,600	197,852	+ 39,998	—	—	—	—	—
	Bengal-Nag ur	3,267	Ja ., 1944	1.030.425	+ 13.425	3	10,1 8.350	9,098.625	+ 1.084.725	Ord. Stk.	104¼	101¼	105½	3
	Madras & Southern Mahratta	2,939	20 2 44	320,100	+ 22.796	40	9,095,760	7,718.629	+ 1,377,131	—	—	—	—	—
	South Indian	2,349	20.12.43	19 ,41	+ 24,449	37	5,321,558	4,562,445	+ 750,113	—	—	—	—	—
Various	Egyptian Delta	—	10.2.44	13 168	+ 4,021	46	521,210	403,895	+ 120 315	Prf. Sh.	6⅛	2⅞	6	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	45	32	40	8½
	Midland of W. Australia ...	277	Jan., 1944	27,277	– 7 762	29	223,921	225,367	– 1,446	Inc. Deb.	101	93	100½	6
	Nigerian	1,900	30.12.43	68,456	+ 7,866	26	1.933,466	1,833,420	+ 160,046	—	—	—	—	—
	South Africa	13,291	5.2.44	906,790	+ 63,914	4	37,522,295	34,935,498	+ 2,586,797	—	—	—	—	—
	Victoria	4,774	Nov, 1943	1,335,935	– 64,116	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of ⅛ Argentine traffics are given in sterling calculated @ 16⅜ pesos to the £
† Receipts are calculated @ 1s. 6d. to the rupee § ex dividend